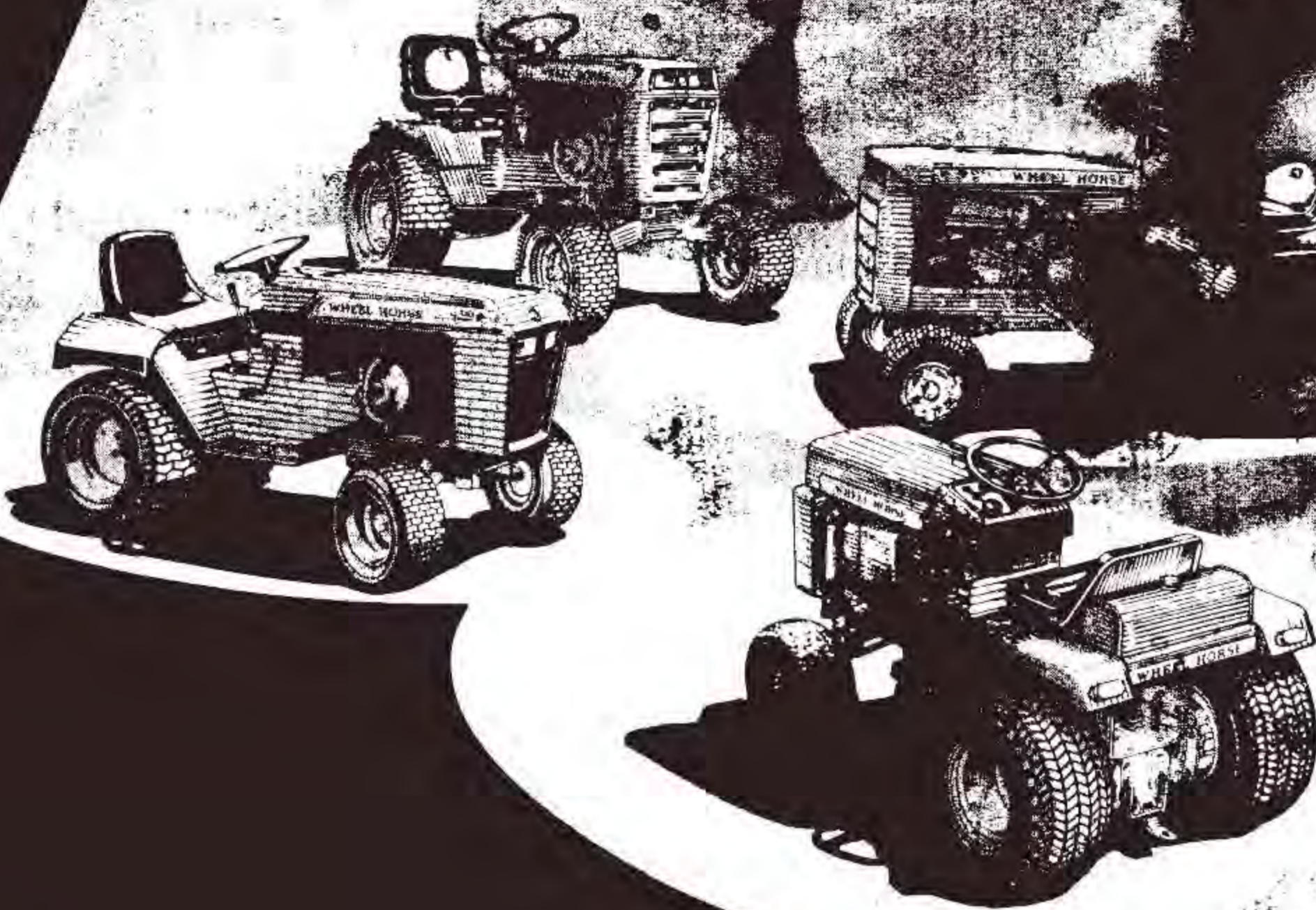


**"B" & "D"**

**Series**

**6-speed  
8-speed  
automatic**



**Owners  
Manual**



**WHEEL HORSE**  
lawn & garden tractors

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## CAUTION



This symbol marks important instructions relating to your personal safety. To avoid the possibility of injury, read and follow such instructions carefully.

When the manual refers to the left or right side of the vehicle, it means your left and right when sitting in the driver's seat.

# TRACTOR SPECIFICATIONS:

## ENGINE:

TRACTOR MODEL	ENGINE MODEL*	RATED H. P.**	DISPLACEMENT cu. in./cc	BORE in./mm	STROKE in./mm	IGNITION
B-81	B-191707	8	19.44/318.56	3/76.2	2.75/69.9	Magneto
B-111	B-252707	11	24.36/399.19	3.438/87.3	2.625/66.7	Magneto
C-81	K181S	8	18.6/304.8	2.94/74.7	2.75/69.8	Battery
C-101	K241AS	10	23.9/391.6	3.25/82.6	2.88/72.9	Battery
C-121	K301AS	12	29.07/476.4	3.38/85.7	3.25/82.6	Battery
C-141	K321AS	14	31.27/512.4	3.5/88.9	3.25/82.6	Battery
C-161	K341AS	16	35.89/588.1	3.75/95.3	3.25/82.6	Battery
C-171	KT17	17	42.18/691.4	3.125/79.4	2.75/69.8	Battery
D-160	O-B43M-GA016	16	43.3/709.6	3.25/82.6	2.62/66.5	Battery
D-200	K532S	19.9	53.68/879.7	3.38/85.7	3/76.2	Battery

\*Letter Prefix: B = Briggs & Stratton, K = Kohler, O = Onan. Basic engine model number shown; specification and serial numbers from engine I. D. plate are required to completely identify engine.

\*\*Engine manufacturer's rating at 3600 RPM.

## TRANSMISSION:

### B-Series Models

Type: Mechanical  
All Gear

Number of Forward Speeds: 6

Number of Reverse Speeds: 1

Approximate Ground Speeds (at full throttle):

Gear	Low Range	High Range
1st	.9 mph (1.4 kph)	2.2 mph (3.6 kph)
2nd	1.3 mph (2.0 kph)	3.3 mph (5.4 kph)
3rd	1.4 mph (2.3 kph)	5.0 mph (8.0 kph)
Rev.	2.7 mph (4.3 kph)	2.7 mph (4.3 kph)

### C-Series Automatic Models

Type: Hydrostatic

Number of Forward Speeds: Infinite

Number of Reverse Speeds: Infinite

Approximate Ground Speeds (at full throttle):

Variable 0-6.3 mph (10 kph) Forward

Variable 0-3.2 mph (5.2 kph) Reverse

### C-Series 8-Speed Models

Mechanical  
All Gear

6

2

Gear	Low Range	High Range
1st	.5 mph (.8 kph)	2 mph (3.2 kph)
2nd	.8 mph (1.3 kph)	3.2 mph (5.2 kph)
3rd	1.4 mph (2.2 kph)	5.5 mph (8.8 kph)
Rev.	.6 mph (1 kph)	2.6 mph (4.2 kph)

### D-Series Automatic Models

Hydrostatic

Infinite

Infinite

Variable 0-6.5 mph (10.2 kph) Forward

Variable 0-3.6 mph (5.8 kph) Reverse

## ELECTRICAL SYSTEM:

Type: 12 Volt D.C.,  
Negative Ground

Alternator: Briggs & Stratton — Dual  
Circuit, 12 Volt, 3 Amp.  
(Charging Circuit)  
Onan and Kohler —  
12 Volt, 15 Amp.

Battery: B-81, B-111, C-81 —  
12 Volt, 24 Amp. Hr.  
C-101, C-121, C-141,  
C-161, C-171 —  
12 Volt, 32 Amp. Hr.  
D-160, D-200 —  
12 Volt, 45 Amp. Hr.

## TIRES:

Sizes:	Front	Rear
B-81	13 x 5:00-6	18 x 8:50-8
B-111	13 x 6:50-6	18 x 9:50-8
C-Series	16 x 6:50-8	23 x 8:50-12
D-Series	18 x 8:50-8	26 x 12:00-12

## Pressure:

PSI	12	12
kg/cm <sup>2</sup>	.85	.85

# TRACTOR SPECIFICATIONS (continued):

## PHYSICAL DATA:

TRACTOR MODEL	HEIGHT	LENGTH	WIDTH	WHEEL BASE	OUTSIDE TURNING RADIUS	DRY WEIGHT
B-81	37 in. (94 cm)	65 in. (165 cm)	34.5 in. (88 cm)	45.5 in. (116 cm)	80 in. (203 cm)	330 lbs. 150 kg
B-111	37 in. (94 cm)	65 in. (165 cm)	36 in. (92 cm)	45.5 in. (116 cm)	80 in. (203 cm)	350 lbs. 159 kg
C-81	41 in. (104 cm)	65 in. (165 cm)	36 in. (92 cm)	45.5 in. (116 cm)	75.75 in. (192 cm)	540 lbs. (243 kg)
C-101	41 in. (104 cm)	65 in. (165 cm)	36 in. (92 cm)	45.5 in. (116 cm)	75.75 in. (192 cm)	590 lbs. (266 kg)
C-121 8-Speed	41 in. (104 cm)	65 in. (165 cm)	36 in. (92 cm)	45.5 in. (116 cm)	75.75 in. (192 cm)	600 lbs. (270 kg)
C-121 Automatic	41 in. (104 cm)	65 in. (165 cm)	36 in. (92 cm)	45.5 in. (116 cm)	75.75 in. (192 cm)	630 lbs. (284 kg)
C-141, C-161 8-Speed	41 in. (104 cm)	65 in. (165 cm)	36 in. (92 cm)	45.5 in. (116 cm)	75.75 in. (192 cm)	600 lbs. (270 kg)
C-141, C-161 Automatic	41 in. (104 cm)	65 in. (165 cm)	36 in. (92 cm)	45.5 in. (116 cm)	75.75 in. (192 cm)	640 lbs. (288 kg)
C-171 8-Speed	41 in. (104 cm)	69 in. (175.3 cm)	36 in. (92 cm)	45.5 in. (116 cm)	75.75 in. (192 cm)	550 lbs. (249 kg)
C-171 Automatic	41 in. (104 cm)	69 in. (175.3 cm)	36 in. (92 cm)	45.5 in. (116 cm)	75.75 in. (192 cm)	590 lbs. (266 kg)
D-160	45.5 in. (116 cm)	75.5 in. (192 cm)	45 in. (114 cm)	50 in. (127 cm)	90 in. (229 cm)	875 lbs. (394 kg)
D-200	45.5 in. (116 cm)	75.5 in. (192 cm)	45 in. (114 cm)	50 in. (127 cm)	90 in. (229 cm)	1025 lbs. (461 kg)

## TUNE-UP/GENERAL MAINTENANCE SPECIFICATIONS:

### ENGINE:

TRACTOR MODEL	POINT GAP in./mm	TIMING MARK LOCATION	IGNITION TIMING (BTDC)	SPARK PLUG TYPE*	SPARK PLUG GAP in./mm	DIRECTION OF ROTATION (Facing PTO)	IDLE RPM (No Load)	GOVERNED MAX. RPM (No Load)
B-81	.020/.5	N/A	Fixed	CJ-8	.030/.76	Counterclockwise	1750	3300
B-111	.020/.5	N/A	Fixed	CJ-8	.030/.76	Counterclockwise	1750	3300
C-81	.020/.5	N/A	Fixed	J-8	.025/.64	Counterclockwise	1900	3500
C-101	.020/.5	N/A	Fixed	H-10	.025/.64	Counterclockwise	2100	3400
C-121	.020/.5	N/A	Fixed	H-10	.025/.64	Counterclockwise	2100	3400
C-141	.020/.5	N/A	Fixed	H-10	.025/.64	Counterclockwise	2100	3400
C-161	.020/.5	N/A	Fixed	H-10	.025/.64	Counterclockwise	2100	3400
C-171	.020/.5	N/A	Fixed	BL-15Y	.025/.64	Counterclockwise	2100	3400
D-160	.023/.6	Flywheel	25 (Cold)	H-8	.025/.64	Counterclockwise	1350	3600
D-200	.020/.5	Flywheel	27	H-10	.035/.9	Counterclockwise	1350	3600

\*Or equivalent (Champion number shown).

### LIQUID CAPACITIES:

<b>Crankcase:</b>	B-81 — 1 $\frac{1}{8}$ qt. (1.1 l) B-111 — 1 $\frac{1}{2}$ qt. (1.4 l) C-81 — 1 $\frac{1}{4}$ qt. (1.2 l) C-101 — 1 $\frac{1}{2}$ qt. (1.4 l) C-121 — 1 $\frac{1}{2}$ qt. (1.4 l) C-141 — 1 $\frac{1}{2}$ qt. (1.4 l) C-161 — 1 $\frac{1}{2}$ qt. (1.4 l) C-171 — 1 $\frac{3}{4}$ qt. (1.6 l) D-160 — 2 qt. (1.9 l) w/filter D-200 — 3 $\frac{1}{2}$ qt. (3.3 l) w/filter
<b>Transmission:</b>	B-Series — N/A C-Series 8-Speed — 2 qt. (1.9 l) C-Series Automatic — 5.5 qt. (5.2 l) D-Series — 6 qt. (5.7 l)
<b>Fuel Tank:</b>	B-Series — 1 $\frac{1}{2}$ gal. (5.7 l) C-Series — 3 gal. (11.4 l) D-160 — 5 $\frac{3}{4}$ gal. (21.9 l) D-200 — 8 gal. (30.4 l)

### CHASSIS:

<b>Zerk Fittings:</b>	B-Series — 6 C-Series — 6 D-Series — 7
<b>PTO Brake Adjustment (PTO engaged):</b>	B-Series — .010 (.25 mm) Gap between brake pad and pulley C-Series — .012 (.3 mm) Gap between brake pad and pulley D-200 — .012 (.3 mm) Gap between brake pad and pulley D-160 — Refer to text
<b>Front Wheel End Play:</b>	0-.015 in. (.4 mm) All Models
<b>Front Wheel Alignment (toe-in):</b>	$\frac{1}{16}$ - $\frac{1}{8}$ in. (1.6-3.2 mm) D-Series only

# GENERAL SAFETY SUGGESTIONS

Recommended by Outdoor Power Equipment Institute

## SAFE OPERATION PRACTICES — RIDING VEHICLES

1. Know the controls and how to stop quickly — **READ THE OWNER'S MANUAL.**
2. Do not allow children to operate vehicle. Do not allow adults to operate it without proper instruction.
3. Do not carry passengers. **Keep children and pets a safe distance away.**
4. Clear work area of objects which might be picked up and thrown.
5. Disengage all attachment clutches and shift into neutral before attempting to start engine (motor).
6. Disengage power to attachments and stop engine (motor) before leaving operator position.
7. Disengage power to attachment(s) and stop engine (motor) before making any repairs or adjustments.
8. Disengage power to attachments when transporting or not in use.
9. Take all possible precautions when leaving vehicle unattended; such as disengaging power-take-off, lowering attachments, shifting into neutral, setting parking brake, stopping engine and removing key.
10. Do not stop or start suddenly when going uphill or downhill. Mow up and down the face of steep slopes; never across the face.
11. Reduce speed on slopes and in sharp turns to prevent tipping or loss of control. Exercise extreme caution when changing direction on slopes.
12. Stay alert for holes in terrain and other hidden hazards.
13. Use care when pulling loads or using heavy equipment.
  - a. Use only approved drawbar hitch points.
  - b. Limit loads to those you can safely control
  - c. Do not turn sharply. Use care when backing.
  - d. Use counterweight(s) or wheel weights when suggested in owner's manual.
14. Watch out for traffic when crossing or near roadways.
15. When using any attachments never direct discharge of material toward bystanders nor allow anyone near vehicle while in operation.
16. Handle gasoline with care — it is highly flammable.
  - A. Use approved gasoline container. Place container out of the reach of children.
  - B. Use gasoline only as a fuel — never as a cleaner. Never remove cap or add gasoline to a running or hot engine or fill fuel tank indoors. Wipe up spilled gasoline. And positively **NO SMOKING.**
  - C. Open doors if engine is run in garage — exhaust fumes are dangerous. Do not run engine (motor) indoors.
17. Keep vehicle and attachments in good operating condition and keep safety devices in place.
18. Keep all nuts, bolts, and screws tight to be sure equipment is in safe working condition.
19. Never store equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark.
20. Allow engine to cool before storing in any enclosure.
21. To reduce fire hazard keep engine free of grass, leaves or excessive grease.
22. Vehicle and attachments should be stopped and inspected for damage after striking a foreign object and the damage should be repaired before restarting and operating the equipment.
23. Do not change engine governor settings or over-speed engine.
24. When using vehicle with mower:
  - (1) Mow only in daylight or in good artificial light.
  - (2) Never make a cutting height adjustment while engine (motor) is running if operator must dismount to do so.
  - (3) Shut engine (motor) off when unclogging chute.
  - (4) Check blade mounting bolts for proper tightness at frequent intervals.
25. Check grass catcher bags frequently for wear or deterioration. Replace with new bags for safety protection.



## CAUTION



1. **KEEP ALL SHIELDS IN PLACE.**
2. **BEFORE LEAVING OPERATOR'S POSITION:**
  - A. **SHIFT TRANSMISSION TO NEUTRAL**
  - B. **DISENGAGE AND LOWER ATTACHMENTS**
  - C. **SET PARKING BRAKE**
  - D. **SHUT OFF ENGINE (MOTORS)**
  - E. **REMOVE IGNITION KEY**
3. **KEEP PEOPLE AND PETS A SAFE DISTANCE AWAY FROM MACHINE.**
4. **WAIT FOR ALL MOVEMENT TO STOP BEFORE SERVICING MACHINE.**

## VEHICLE IDENTIFICATION NUMBER (VIN) LOCATIONS

Vehicle identification numbers are used to identify your new tractor and major attachments. These numbers should always be referred to when consulting your dealer or the factory concerning service, parts, or other information you may require. If these plates are removed during repair operations, they should always be replaced.

The tractor vehicle identification number plate is located just below the dash panel.

Engine identification number plates are located on the engine shrouding and indicate the model, specification or type number and the serial number of your tractor's engine.

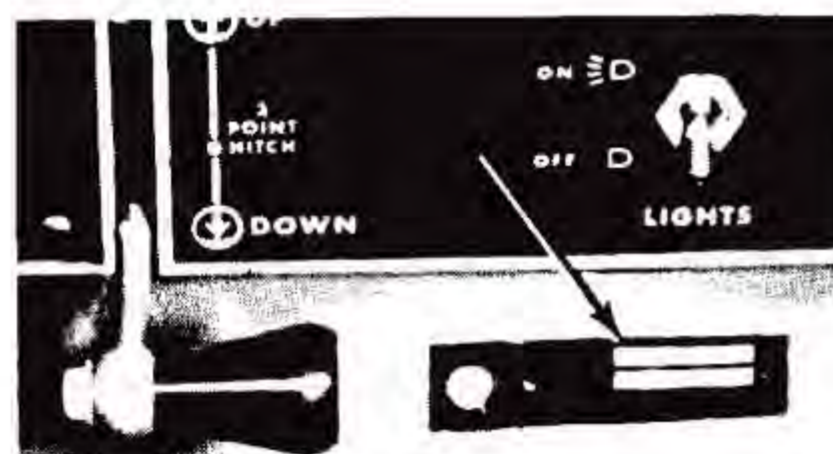
Major attachments also have a vehicle identification number plate attached to them.

For your convenience and ready reference, enter the tractor and engine numbers below.



**B & C Series  
VIN Plate Location**

Tractor Identification Number



**D-Series  
VIN Plate Location**

Engine Identification Number

Model \_\_\_\_\_

Type or Spec No. \_\_\_\_\_

Serial No. \_\_\_\_\_

## OWNER REGISTRATION AND IDENTIFICATION CARD

Service and warranty assurance is as important to Wheel Horse as it is to you, the owner. TO ASSURE warranty service at an Authorized Wheel Horse Dealer, Wheel Horse provides an "OWNER IDENTIFICATION CARD" for each new tractor, or major attachment, registered with the factory.

To receive your "OWNER IDENTIFICATION CARD" either you or your dealer must fill in the required information on the "NEW OWNER FACTORY REGISTRATION CARD" and mail immediately. Your "OWNER IDENTIFICATION CARD" will be returned by mail.

**WHEEL HORSE**  
lawn & garden tractors

**OWNER IDENTIFICATION CARD**

PRODUCT ID NUMBER \_\_\_\_\_

SELLING DEALER \_\_\_\_\_ WARRANTY EXPIRES \_\_\_\_\_

Present this card to an authorized dealer to obtain warranty service

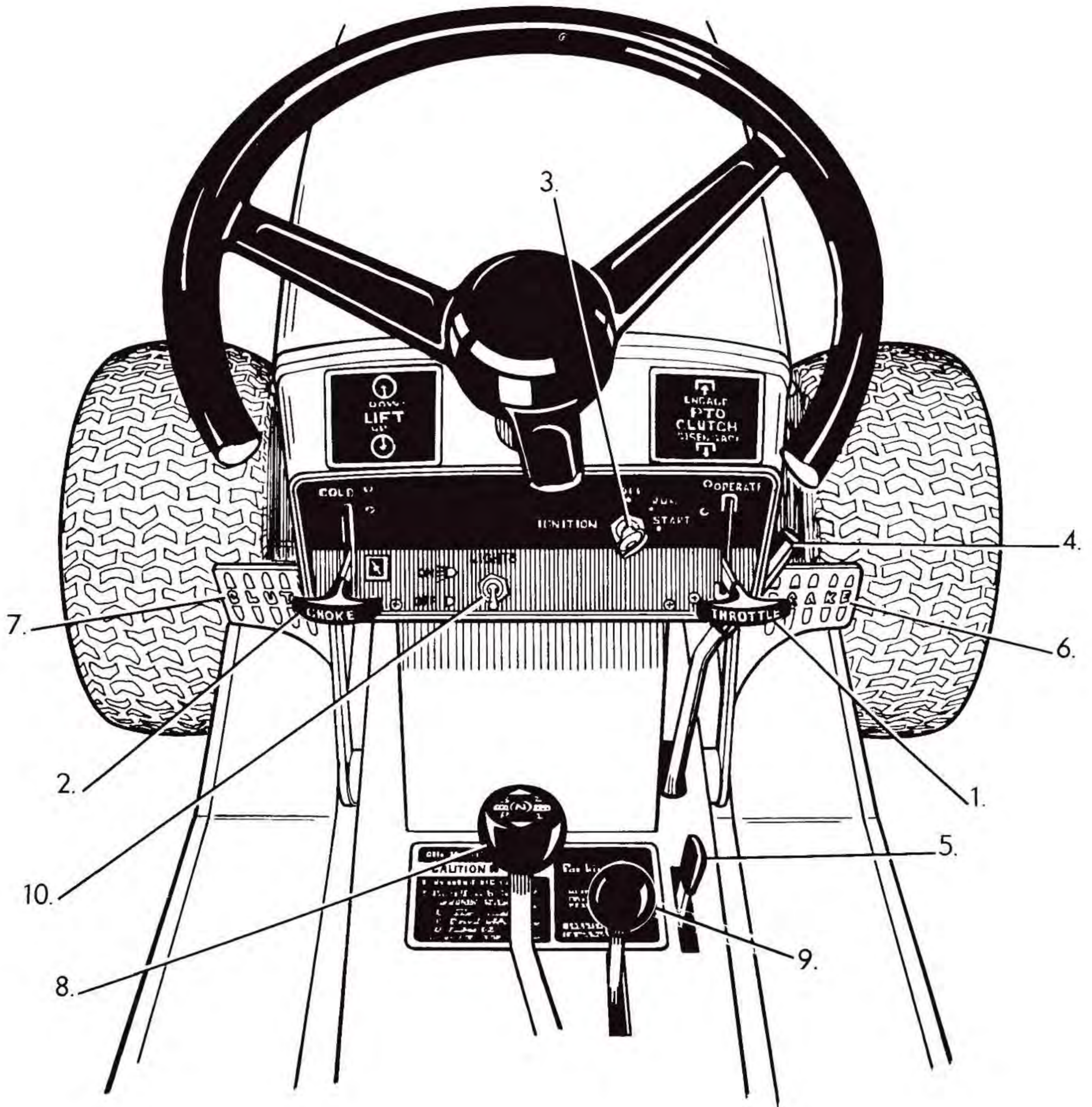
## PARTS MANUAL

A separate parts manual is available for your Wheel Horse equipment. To obtain a parts manual, see the ordering information found at the end of this publication.

BE SURE TO INCLUDE THE VEHICLE IDENTIFICATION NUMBER OF THE EQUIPMENT.

# INSTRUMENTS AND CONTROLS

## B-SERIES TRACTORS



## 1. THROTTLE CONTROL

The throttle control is located on the right side of the dash panel. This lever controls engine speed. Raise the lever to operate the tractor; lower the lever to the start the engine.

## 2. CHOKE CONTROL

The choke control is located on the left side of the dash panel. Raise the choke lever to the cold start position when starting the engine. Return slowly to Run position after the engine starts. If the engine is warm and has been running, choking may not be necessary to restart it.

## 3. IGNITION SWITCH

The ignition switch is located on the upper portion of the dash panel, just right of center. The ignition switch has three positions from left to right: (1) Off, (2) Run, (3) Start. To start the engine, turn the key all the way to the right. Release the key when the engine starts and it will automatically return to the Run position. When the switch is turned off, the engine stops and all electrical accessories are turned off.

## 4. PTO (POWER TAKE-OFF) CLUTCH LEVER

The PTO clutch lever is located on the right side of the tractor, between the parking brake and the brake pedal. Power driven attachments are engaged and disengaged with the PTO lever.

To engage the PTO, push lever forward. To disengage, pull the lever back.

The PTO lever actuates a safety interlock switch; therefore, the PTO lever must be in the disengaged position before the engine will start.

## 5. PARKING BRAKE LEVER

The parking brake lever is located in front of the seat to the right of the transmission shift lever.

To engage the parking brake, first apply the foot brake solidly and then move the parking brake lever back to lock the brake On.

To release the parking brake, push down on the foot brake. The parking brake lever is spring loaded and will return to the disengaged position when the foot brake is applied.

## 6. BRAKE PEDAL

The brake pedal is located at the right side of the tractor. Pushing down on the pedal applies the brake.

**Note: When coming to a stop always depress the clutch pedal as well as the brake pedal so that the transmission will be disconnected from the engine.**

## 7. CLUTCH PEDAL

The clutch pedal is located at the left side of the tractor. Pushing down on the clutch pedal does two things: (1) Declutches the tractor drive belt, disconnecting the engine from the transmission; (2) Actuates a safety interlock switch, so the starter will operate. Engaging the clutch is done by releasing the pedal which tightens the drive belt. **Always release the pedal slowly when engaging the clutch. Always depress the pedal when shifting the transmission into or out of gear and when starting the engine.**

## 8. GEAR SHIFT LEVER

The gear shift lever is located just in front of the seat. Select any of three forward speeds or reverse by moving the lever to the position indicated on the shift pattern decal on the gear shift knob.

## 9. RANGE SELECTOR

The range selector is located in front of the seat, just behind the parking brake lever. Select either high or low range by moving the lever forward or rearward to the position indicated on the decal. Low range provides a 2.6 to 1 speed reduction in each of the three forward gears to provide a slower ground speed. Low range applies only to forward speeds. The single reverse speed remains constant regardless of the range selector's position. **DO NOT USE A MID-POINT POSITION FOR NEUTRAL.** Neutral must be selected with the gear shift lever.

## 10. LIGHT SWITCH (B-111 only)

The light switch is located on the lower portion of the dash panel, just left of center. Raise the toggle switch to turn lights on. Lower the switch to turn lights off. The lights will work only while the engine is running.

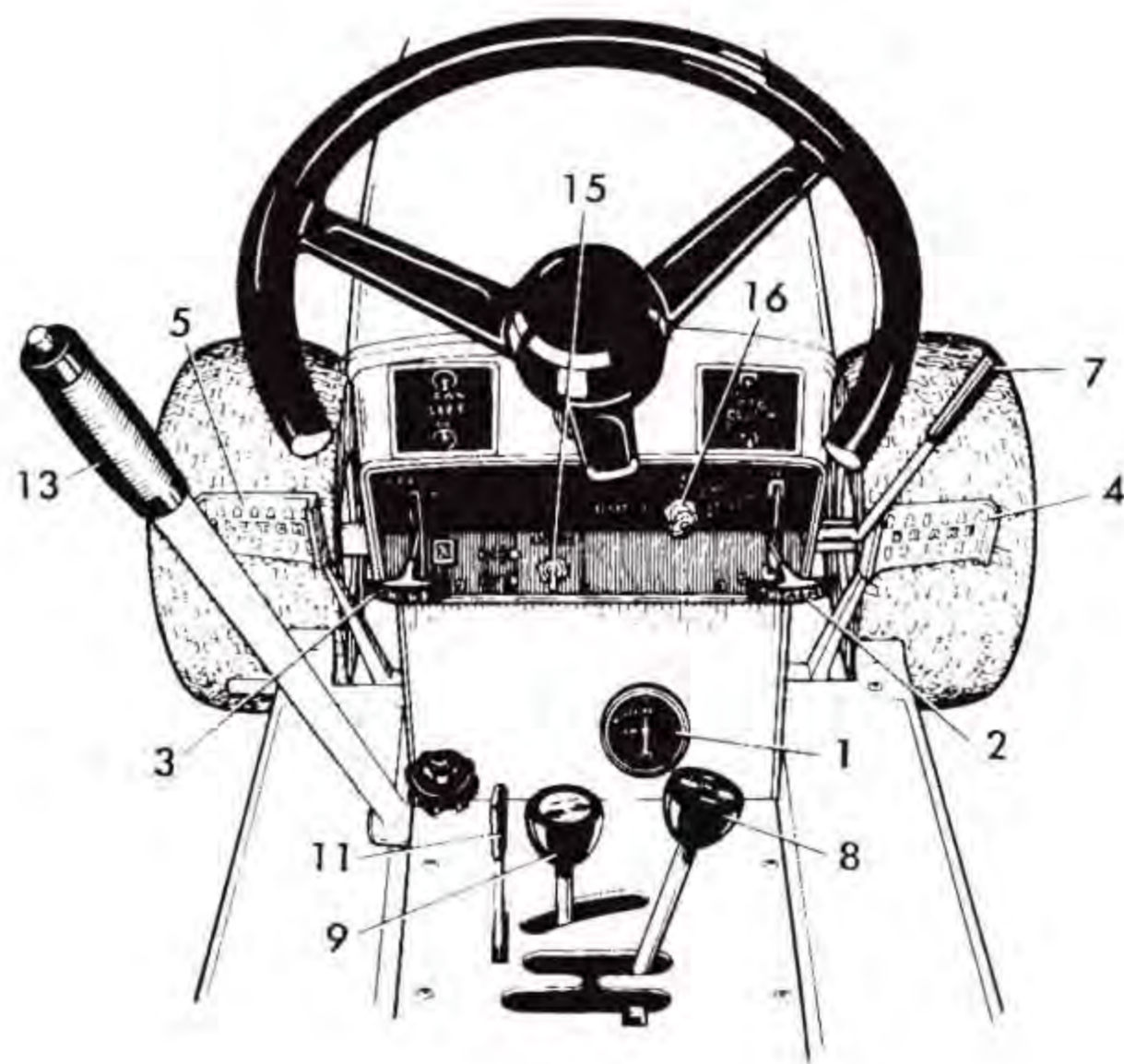
## 11. FUEL SHUT-OFF VALVE (Not Shown)

The fuel shut-off valve is located at the left side of the hoodstand. The fuel shut-off valve is normally left open, except when service on the fuel system becomes necessary.

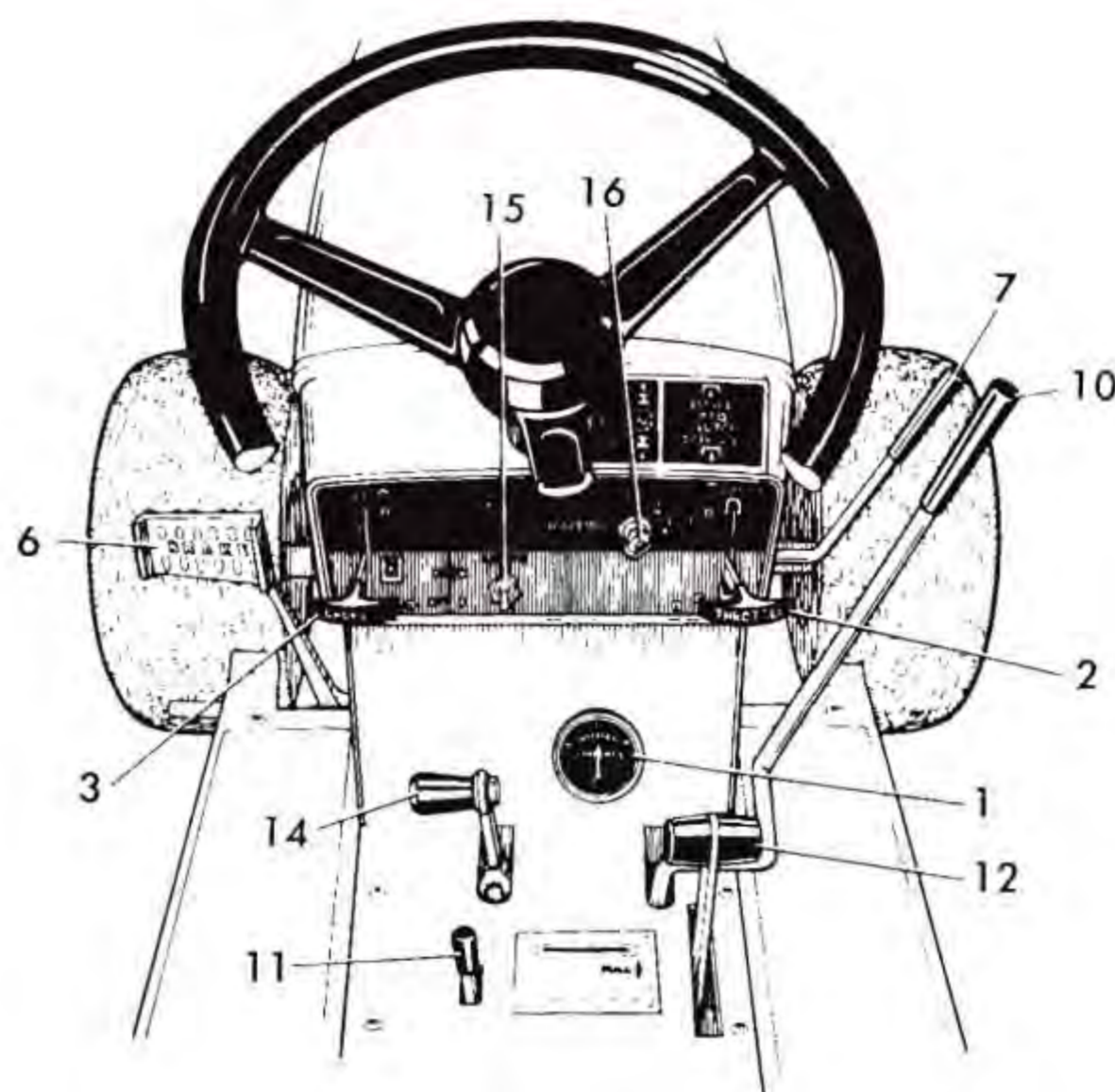


# INSTRUMENTS AND CONTROLS

## C-SERIES TRACTORS



8-SPEED MODEL WITH MANUAL LIFT



AUTOMATIC MODEL WITH HYDRAULIC LIFT

### 1. AMMETER

The ammeter is located in front of the operator, just below the dash panel. The ammeter is a gauge indicating the rate at which the battery is being charged (+) or discharged (-).

### 2. THROTTLE CONTROL

The throttle control is located on the right side of the dash panel. This lever controls engine speed. Raise the lever fully to operate the tractor; lower the lever to start the engine.

### 3. CHOKE CONTROL

The choke control is located on the left side of the dash panel. Raise the choke lever to the cold start position when starting the engine. Return slowly to Run position after the engine starts. If the engine is warm and has been running, choking may not be necessary to restart it.

### 4. BRAKE PEDAL (8-Speed Models)

The brake pedal is located at the right side of the tractor. Pushing down on the pedal applies the brake. **Note: When coming to a stop always depress the clutch pedal as well as the brake pedal so that the transmission will be disconnected from the engine.**

### 5. CLUTCH PEDAL (8-Speed Models)

The clutch pedal is located at the left side of the tractor. Pushing down on the clutch pedal does two things: (1) Declutches the tractor drive belt, disconnecting the engine from the transmission; (2) Actuates a safety interlock switch, so the starter will operate. Engaging the clutch is done by releasing the pedal which tightens the drive belt. **Always release the pedal slowly when engaging the clutch. Always depress the pedal when shifting the transmission into or out of gear and when starting the engine.**

### 6. BRAKE/RETURN TO NEUTRAL PEDAL (Automatic Models)

The brake pedal, located at the left side of the tractor, provides dynamic braking to both rear wheels through the automatic transmission. As the brake pedal is depressed, the transmission is shifted to neutral. When the brake pedal is fully depressed, a mechanical brake is also applied for additional braking action. The pedal must be depressed when starting the engine, as the pedal linkage actuates a safety interlock switch, allowing the starter to operate.

## 7. PTO (POWER TAKE-OFF) CLUTCH LEVER

The PTO clutch lever is located on the right side of the tractor. Power driven attachments are engaged and disengaged with the PTO lever. Push the lever forward to engage attachment. Pull the lever back to disengage attachment. The PTO clutch actuates a safety interlock switch in the starter circuit; therefore, the tractor will not start unless this lever is in the disengaged position. If the operator's seat is vacated while the PTO is engaged, a seat switch will automatically shut off the engine.

## 8. GEAR SHIFT LEVER (8-Speed Models)

The gear shift lever is located just in front of the seat. Select any of three forward speeds or reverse by moving the lever to the position indicated on the shift pattern decal on the gear shift knob.

## 9. RANGE SELECTOR (8-Speed Models)

The range selector is located in front of the seat, just forward of the gear shift lever. Select either high or low range by moving the lever right or left to the position indicated on the decal on the shift knob. Low range provides a 4 to 1 speed reduction and greater pulling power for moving heavy loads in each of the three forward speeds and reverse. **Do not use a mid-point position for neutral; neutral must be selected with the gear shift lever.**

## 10. MOTION CONTROL LEVER (Automatic Models)

The motion control lever is located just right of the steering wheel. Push the lever ahead to drive the tractor forward. Pull the lever back for reverse. Move the lever to the neutral (center) position to stop. The brake pedal moves the lever to the neutral position for dynamic braking. The control lever varies ground speed and pulling power of the tractor independent of engine speed. To increase ground speed, move lever away from neutral. Increase pulling power by moving lever toward neutral. The neutral position is provided with a detent type stop to give a "perceptible feel" as the control lever passes through neutral.

## 11. PARKING BRAKE LEVER

The parking brake lever is located in front of the seat to the left.

To engage the parking brake, first apply the foot brake solidly and then move the parking brake lever back to lock the brake On.

To release the parking brake, push down on the foot brake. The parking lever is spring loaded and will return to the disengaged position when the foot brake is applied.

## 12. TRANSMISSION CLUTCH LEVER (Automatic Models)

The transmission clutch lever is located between the seat and the motion control lever. The transmission clutch lever disconnects the engine from the trans-

mission. Pull the lever up and to the rear to disconnect the transmission.

Push the lever forward and down to engage the transmission.

Always disengage the transmission when starting the engine in cold weather.

## 13. MANUAL LIFT LEVER (8-Speed Models, C-121 Automatic)

The manual lift lever is located just left of the steering wheel. Depress the release button and move the lever forward or backward to lower or raise attachments used with the tractor. When it is desired to hold an attachment at a certain height above the ground, the forward (down) travel of the lever can be limited by the Dial-A-Hite selector. Turn the hand knob right or left until the lift lever is held in the desired position. Always lower attachments before leaving the tractor unattended.

## 14. HYDRAULIC LIFT LEVER (C-171, C-161, C-141 Automatic)

The hydraulic lift lever is located on the lower dash panel, just below the choke control. Pull the lever back to lift attachment. Release lever to hold attachment in position. Push lever forward to lower attachment. The neutral position will hold an attachment at any position from full up to full down. Always lower attachments before leaving the tractor unattended.

## 15. LIGHT SWITCH (C-171, C-161, C-141, C-121 only)

The light switch is located on the lower portion of the dash panel, just left of center. Raise toggle to turn on lights. Lower toggle to turn lights off. Lights work only when the ignition switch is in the Run position.

## 16. IGNITION SWITCH

The ignition switch is located on the upper portion of the dash panel, just right of center. The ignition switch has three positions from left to right: (1) Off, (2) Run, (3) Start. To start the engine, turn the key all the way to the right. Release the key when the engine starts and it will automatically return to the Run position. When the switch is turned off, the engine stops and all electrical accessories are turned off.

## 17. FUEL SHUT-OFF VALVE (Not Shown)

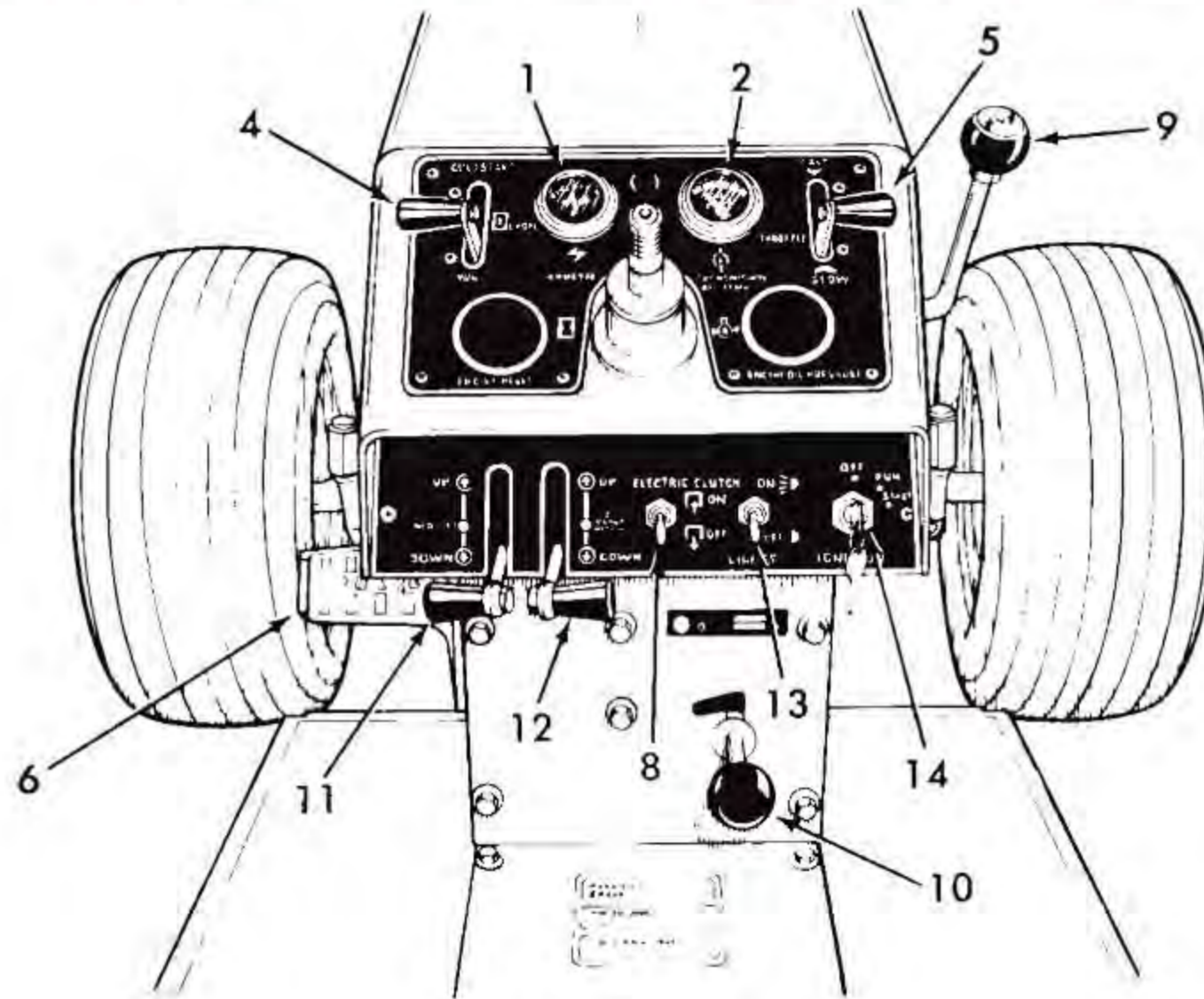
The fuel shut-off valve is located at the bottom of the fuel tank. The fuel shut-off valve is normally left open, except when service on the fuel system becomes necessary.

## 18. FUEL GAUGE AND VENT CAP (Not Shown)

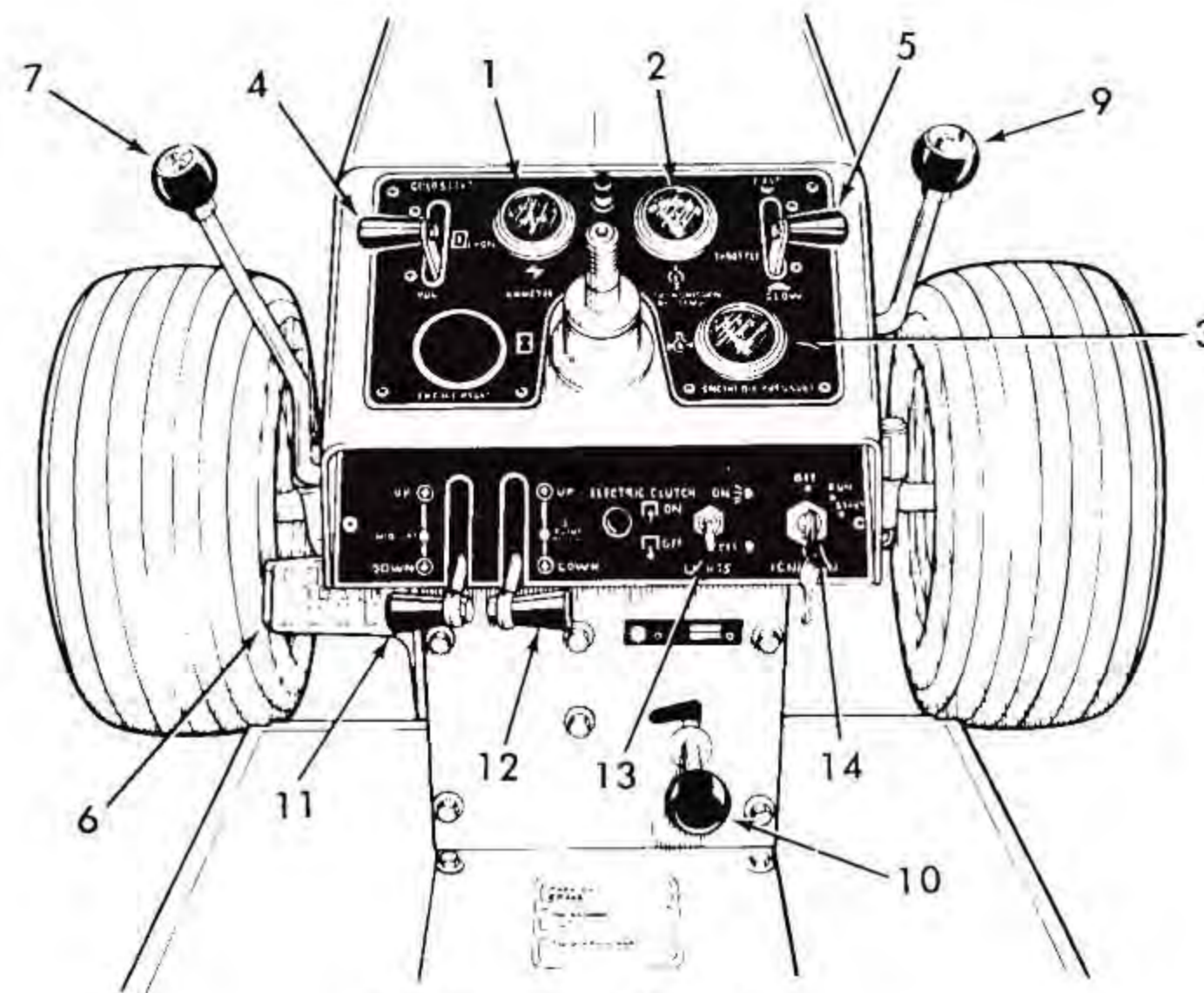
The gas cap is designed with a built-in fuel level gauge. Always make sure the vents in the cap are open.

# INSTRUMENTS AND CONTROLS

## D-SERIES TRACTORS



D-160 AUTOMATIC



D-200 AUTOMATIC

### 1. AMMETER

The ammeter is located on the upper left portion of the dash panel. The ammeter is a gauge indicating the rate at which the battery is being charged (+) or discharged (-).

### 2. TRANSMISSION OIL TEMPERATURE GAUGE

The transmission oil temperature gauge is located on the upper right portion of the dash panel. This gauge serves as an indicator of transmission overload or

possible malfunction. Operating in the yellow range should be done only for short periods of time. Operating in the red (above 250°) should be strictly avoided.

### 3. ENGINE OIL PRESSURE GAUGE (D-200 only)

The engine oil pressure gauge is located on the lower right portion of the dash panel. This gauge gives an indication of engine condition. The oil pressure reading should be 45 to 65 P.S.I. at full throttle with the engine at operating temperature.

#### **4. CHOKE CONTROL**

The choke control is located on the left side of the dash panel. Move choke lever forward to the cold start position when starting the engine. Return slowly to the Run position after the engine starts. If the engine is warm and has been running, choking may not be necessary to restart it.

#### **5. THROTTLE CONTROL**

The throttle control is located on the right side of the dash panel. This lever controls engine speed. Move the lever forward to operate the tractor; pull lever back to start the engine.

#### **6. BRAKE/RETURN TO NEUTRAL PEDAL**

The brake pedal, located on the left side of the tractor, provides dynamic braking to both rear wheels through the automatic transmission. As the brake pedal is depressed, the transmission is shifted to neutral. When the brake pedal is fully depressed, a mechanical brake is also applied for additional braking action. The brake pedal must be depressed when starting the engine, as the pedal linkage actuates a safety interlock switch, allowing the starter to operate.

#### **7. PTO (POWER TAKE-OFF) CLUTCH LEVER (D-200 only)**

The PTO clutch lever is located just left of the steering wheel. Power driven attachments are engaged and disengaged with the PTO lever. Push lever forward to engage attachment. Pull lever back to disengage attachment. The PTO clutch lever actuates a safety interlock switch in the starter circuit; therefore, the lever must be in the disengaged position to start the engine. If the operator's seat is vacated while the PTO is engaged, a seat switch will automatically shut off the engine.

#### **8. PTO (POWER TAKE-OFF) CLUTCH SWITCH (D-160 only)**

The PTO clutch switch is located directly in front of the operator on the lower control panel. Engagement and disengagement of power driven attachments is controlled by the PTO switch. By raising the switch to the On position power driven attachments are immediately engaged. Returning the switch to the Off position disengages attachments. The tractor will **NOT** start with the PTO switch in the On position. If the operator's seat is vacated while the PTO is engaged, a seat switch will automatically shut off the engine.

#### **9. MOTION CONTROL LEVER**

The motion control lever is located just right of the steering wheel. The motion control lever may be moved up and down in the neutral slot. Push the lever down and ahead to go forward. Lift the lever up and pull back to reverse. The brake pedal moves the control lever to neutral for dynamic braking. The control lever varies ground speed and pulling power independent of engine speed. To increase ground speed, move lever away from neutral. Increase pulling power by moving lever toward neutral.

#### **10. PARKING BRAKE LEVER**

The parking brake lever is located just below the lower control panel, directly in front of the operator. To engage the parking brake, depress brake pedal and pull the parking brake lever up and to the left. To disengage, depress the brake pedal and push lever to the right and down.

#### **11. HYDRAULIC LIFT LEVER — Mid Lift**

The mid hydraulic lift lever is located on the left side of the lower control panel. The handle points to the outside of the tractor. The mid lift lever (left lever) operates attachments connected to the mid lift such as the mid mount mower and the snowthrower. OPERATION: Move lever up to lift attachment. Release lever to hold attachment in position. Push lever down to lower attachment. The neutral position will hold the attachment at any position from full up to full down. Always lower attachment before leaving the tractor unattended.

#### **12. HYDRAULIC LIFT LEVER — 3-Point Hitch**

The 3-point hitch hydraulic lift lever is located on the left side of the lower control panel. The handle points to the inside of the tractor. The 3-point hitch lever (right lever) operates the optional 3-point hitch. OPERATION: Move lever up to lift the attachment. Release lever to hold attachment in position. Push lever down to lower attachment. The neutral position will hold the attachment at any position from full up to full down. Always lower attachment before leaving the tractor unattended.

#### **13. LIGHT SWITCH**

The light switch is located on the lower control panel, just to the right of center. Raise toggle to turn on lights. Lower toggle to turn lights off. Lights work only when the ignition switch is in the Run position.

#### **14. IGNITION SWITCH**

The ignition switch is located on the right side of the lower control panel. The ignition switch has three positions from left to right: (1) Off, (2) Run, (3) Start. To start the engine, turn the key all the way to the right. Release the key when the engine starts and it will automatically return to the Run position. When the switch is turned off, the engine stops and all electrical accessories are turned off.

#### **15. FUEL GAUGE AND VENT CAP (Not Shown)**

The gas cap is designed with a built-in fuel level gauge. Always make sure the vents in the cap are open.

#### **16. FUEL SHUT-OFF VALVE (Not Shown)**

The valve is located at the bottom of the fuel tank and is accessible from the rear of the tractor. The fuel shut-off valve is normally left open, except when service on the fuel system becomes necessary.

# OPERATING YOUR TRACTOR

## SAFETY INTERLOCK SYSTEM

The safety interlock system incorporates two switches, for safe starting.

The two starting switches are actuated by the left foot pedal and the PTO clutch control. If the tractor will not start, check that the PTO clutch is disengaged, and the left foot pedal is depressed. The engine will not start unless both switches are properly actuated. C and D-Series tractors are equipped with a seat switch. This switch shuts off the engine if the driver rises off the seat while the PTO is engaged.

## CORRECT ENGINE OPERATION

### CAUTION

Before starting the engine, become familiar with all controls. Read this owner's manual thoroughly. Always check the engine oil level before starting. Always check the transmission oil level (automatic transmission models) before starting.

### WARNING

Care should be taken to avoid inhaling exhaust gases as they contain carbon monoxide gas which is colorless and odorless. Carbon monoxide is a dangerous gas that can cause unconsciousness and is potentially lethal.

Do not run the engine in confined areas such as a closed garage.

## STARTING THE ENGINE

### (Automatic Transmission Models)

Because of a built-in safety interlock system, your new Wheel Horse will not start until the brake pedal is depressed and the PTO is disengaged.

To start the engine depress the brake pedal and disengage the PTO. Move the throttle control lever about half way to the Operate position. Move the choke control all the way to the Cold Start position.

Turn the ignition key clockwise until the starter engages. When the engine starts, release the key. The switch is spring loaded and will return to the Run position automatically.

If the engine fails to start after 30 seconds of continuous cranking, turn the key to the Off position and allow the starter motor to cool. Check for cause of hard starting; consult the Troubleshooting Checklist.

Once the engine has started, slowly return the choke control back to the Run position. If the engine stalls at low speeds, or hesitates during acceleration, the choke should be applied as necessary until the engine reaches normal operating temperature.

When starting the engine during cold weather, be sure to follow the special procedures for warming up the engine and the transmission as described under "Correct Automatic Transmission Operation", before placing the tractor into operation.

## STARTING THE ENGINE

### (6 & 8-Speed Transmission Models)

Because of a built-in safety interlock system, your new Wheel Horse will not start until the clutch pedal is depressed and the PTO is disengaged.

To start the engine depress the clutch pedal and disengage the PTO. Raise the throttle control lever about half way up. Raise the choke control all the way up.

### CAUTION

Always place the transmission gear shift lever in the neutral position before attempting to start the engine.

Turn the ignition key clockwise until the starter engages. When the engine starts, release the key. The switch is spring loaded and will return to the Run position automatically.

If the engine fails to start after 30 seconds of continuous cranking, turn the key to the Off position and allow the starter motor to cool. Check for cause of hard starting; consult the Troubleshooting Checklist.

Once the engine has started, slowly push the choke control back to the Run position. If the engine stalls at low speeds, or hesitates during acceleration, the choke should be applied as necessary until the engine reaches normal operating temperature.

## STOPPING THE ENGINE

To stop the engine, return the throttle lever to the Start or Slow position and turn the ignition key to the Off position. If the engine has been working hard, or the engine is hot, allow the engine to idle a short time before turning the key off. This practice will help to cool the engine before stopping.

**Note:** In case of emergency, the engine may be stopped by turning the ignition key to the Off position.

### ⚠ CAUTION ⚠

**Always remove the key and set the parking brake when leaving the tractor unattended, even if for just a few minutes. Prevent accidents, don't give children or unauthorized persons an opportunity to operate this machine.**

## THROTTLE CONTROL

The throttle control regulates the speed of the engine as measured in RPM (Revolutions Per Minute). This control **should not** be used to regulate the ground speed of the tractor.

The engine in your new Wheel Horse has been designed with a special governor that limits maximum RPM. Unlike an automobile, this governor allows the engine to operate most efficiently at a set speed, and protects it from damage caused by excessive RPM. Always operate the tractor with the throttle control set at  $\frac{3}{4}$  to full speed.

**The engine MUST be operating at a minimum of  $\frac{3}{4}$  throttle whenever the tractor is in use. Using the tractor while the engine is operating at less than  $\frac{3}{4}$  throttle may result in extensive transmission damage on automatic models, as well as poor overall tractor performance on all models.**

## CHOKE CONTROL

The choke control activates a "butterfly" valve in the carburetor. This valve limits the amount of raw air available to the carburetor. If the choke is Open the carburetor has an unrestricted flow of raw air. If the choke is Closed, the amount of raw air available is limited, thus causing the intake of the engine to draw a higher fuel-to-air mixture from the carburetor.

Choking the engine is required when the engine is started cold. Warm engines may not need choking.

## FUEL SPECIFICATION

When the tractor requires refueling, fill the tank with a good grade (90 octane minimum) of regular or unleaded gasoline. **Do not intermix regular and unleaded gasolines. Do not mix oil with gasoline.**

### ⚠ CAUTION ⚠

**Handle fuel with care — it is highly flammable. Use only approved fuel container. Never add fuel while the engine is running. Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors. Replace gasoline cap securely and wipe up all spilled fuel.**

## OIL SPECIFICATION

To protect your new Wheel Horse, check the engine oil level before each use. For maximum protection under all operating conditions use API Service Classification "SE" oil in tractors equipped with Onan engines, and API Service Classification "SC" (formerly "MM"), "SD" (formerly "MS"), or "SE" oil in tractors equipped with Briggs & Stratton or Kohler engines. These letters may appear on the oil can singularly or in combination with other letters.

## CORRECT AUTOMATIC TRANSMISSION OPERATION

**During cold weather, start the engine with the parking brake engaged; on C-Series models also lift up the transmission clutch lever. Run the engine at full throttle for two minutes to allow engine to warm-up and then engage the transmission clutch by pushing the lever down. For temperatures between 0° and 30°F (−18° and −2°C) allow the transmission to run in neutral for 5 minutes before attempting to set the unit into motion. For temperatures below 0°F (−18°C) allow the transmission to run in neutral for 10 minutes before attempting to set the unit in motion. Failure to do so may result in extensive internal transmission damage.**

## TO GO FORWARD

### ⚠ CAUTION ⚠

**Before the tractor will move either forward or backward, the parking brake must be disengaged. ALWAYS depress the brake/return to neutral pedal when disengaging the parking brake.**

The motion of your tractor is controlled by a single "Motion Control Lever". To go forward, simply push the lever forward. The farther forward the lever is pushed, the faster the tractor will go.

### ⚠ CAUTION ⚠

**For safe operation, never move the motion control lever too rapidly, especially on grades.**

By adjusting the motion control lever, the forward speed of the tractor can be regulated **without** adjusting the engine throttle control. For heavy pulling, moving the control lever toward neutral reduces tractor ground speed and increases pulling power much the same as shifting to a lower gear with a mechanical transmission.

## TO GO BACKWARD

To reverse the motion of the tractor, return the motion control lever to the neutral position, and pull the lever back. The farther back the lever is the faster the tractor will go in reverse.

### **⚠ CAUTION ⚠**

**For safe operation, never move the motion control lever too rapidly, especially on grades.**

By adjusting the motion control lever, the reverse speed of the tractor can be regulated **without** adjusting the engine throttle control.

## TO STOP

Stopping the tractor from either the forward or reverse direction can be achieved by one of two methods:

1. Return the motion control lever to its neutral position.
2. Depress the brake pedal.

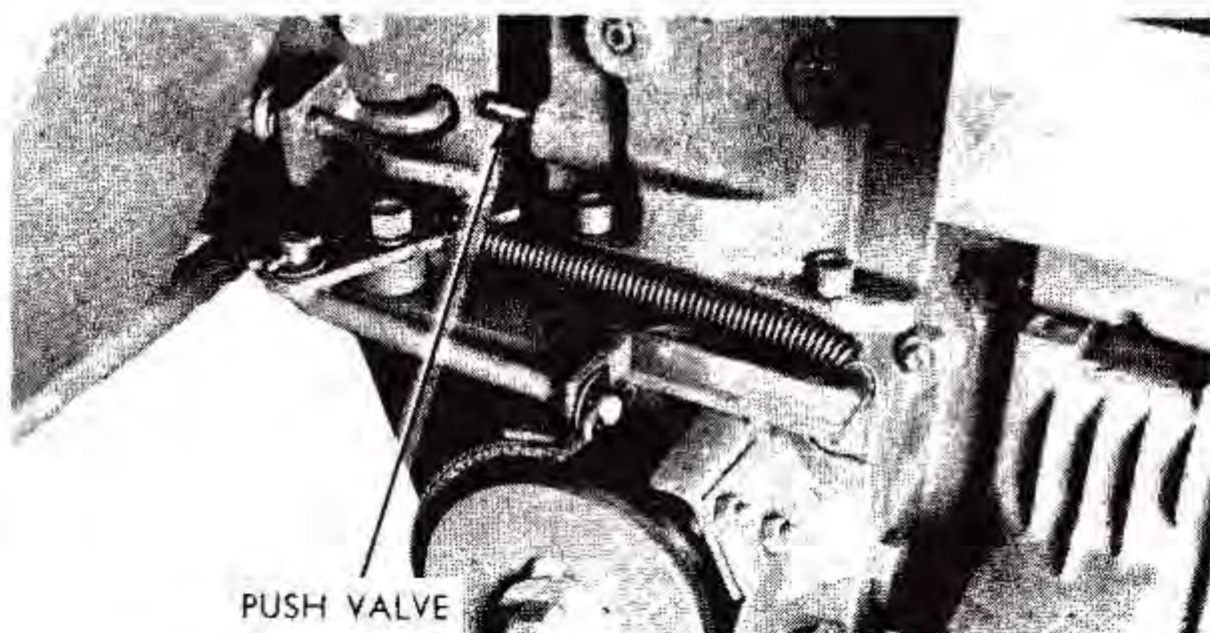
Activating the brake pedal automatically returns the motion control lever to its neutral position and applies a mechanical brake. The brake pedal will hold the motion control lever in the neutral position. The pedal must be released before the motion control lever can be moved either forward or back.

The tractor is stopped by a "dynamic braking" action inside the hydrostatic transmission and a mechanical brake. The tractor may have a slight tendency to roll when stopped on a slope, if the motion control lever has been used to stop the tractor.

**When operating your tractor on a slope the tractor can be stopped from rolling by depressing the brake pedal.**

## PUSH VALVE

Because of the "dynamic brake" feature of the hydrostatic transmission, the tractor can be pushed for only a few feet before the rear wheels will lock. If for some reason the tractor must be pushed, the manual bypass Push Valve must be opened. The valve is located on the left side of the tractor above the footrest on D-Series tractors, and inboard of the left rear wheel on C-Series tractors. To operate the valve, follow the instructions on the "push valve" decal. The valve has a square head and can be opened or closed with a wrench. Be sure to close the valve before operating the tractor.



Push Valve (C-Series Shown)

**Hand push tractor only. Do not tow. Towing can cause severe damage to the hydrostatic transmission.**

## COOLING FAN (D-Series Only)

D-Series tractors are equipped with a fan that helps keep the transmission running cool. The fan is controlled by a thermostat that turns the fan on after the transmission warms-up. The fan will operate almost continuously during warm weather. The fan may cycle on and off during cold weather operation.

## CORRECT 6 & 8-SPEED TRANSMISSION OPERATION

### TO GO FORWARD OR REVERSE

With the engine running, depress both the clutch and the brake pedals. Move the range selector to either the High or the Low position. Move the gear shift lever to the desired speed forward, or to reverse. The gear shift knob identifies the various speeds. Release the brake pedal. Slowly release the clutch pedal. As the clutch pedal is released, the tractor will begin to move.

### **⚠ CAUTION ⚠**

**Always release the clutch pedal slowly when starting the tractor in motion. Sudden starts can be damaging to the equipment and could cause loss of operator control.**

### TO CHANGE SPEEDS OR DIRECTION

When a change in ground speed or direction is required, always bring the tractor to a complete halt by depressing both the clutch and the brake pedals.

**Never attempt to shift gears with the unit in motion. Severe internal transmission damage may result.**

Change either the gear shift lever or range selector as desired. The approximate ground speed for each gear is shown in the specifications in the front of this manual.

It is not necessary or recommended to shift "up" or "down" through the gears with the tractor in motion. The tractor has sufficient power to move out in any gear. If the tractor will not move out in a selected gear with a heavy load attached, a lower gear should be used.

### TO STOP

To stop the tractor, depress the clutch pedal, then the brake pedal. The clutch pedal must be depressed fully before the brake pedal is depressed.

### **⚠ CAUTION ⚠**

**When stopping the tractor always depress the clutch pedal first, then the brake pedal. Depressing the brake without the clutch may cause excessive brake lining wear, or extensive internal transmission damage. Depressing the clutch pedal without depressing the brake pedal WILL NOT STOP THE TRACTOR.**

# CORRECT TRACTOR USAGE

## ⚠ CAUTION ⚠

Read the manuals provided with the attachments before operating. The manuals give a more detailed description of operation and point out other areas of caution.

Familiarize yourself thoroughly with the equipment before attempting to use it.

## B-SERIES ATTACHMENT MOUNTING

B-Series attachments are designed for easy installation and removal. Refer to the manual supplied with each attachment for mounting instructions.

## FRONT AND MID ATTACHMENT HITCHES

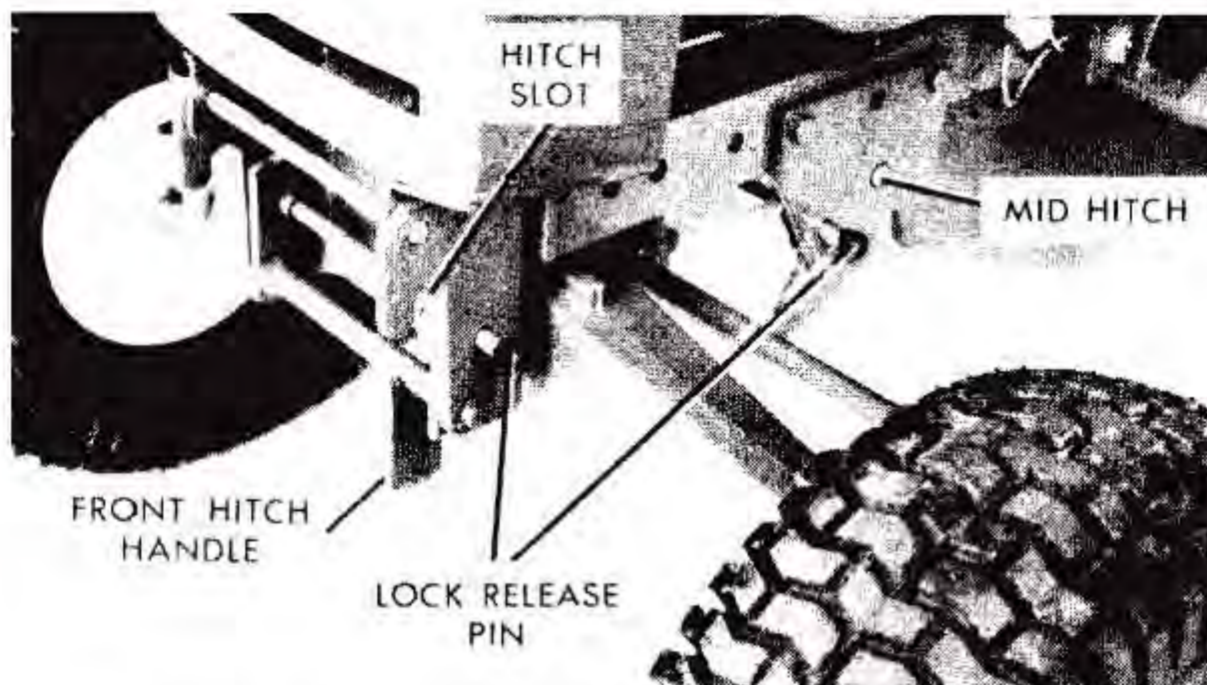
### C and D-SERIES

Tach-a-matic front and mid hitches are provided for easy installation and removal of attachments without tools.

To install attachments make sure the hitch latch is in the released position — to do this, push in on the lock release pin; move the latch lever so the latch is open and release the lock pin to hold the latch in the open position. Insert and center the attachment shaft in the hitch slots and move the latch toward the closed position until the release pin snaps outward.

Removal of the attachment is done by pushing in on the lock release pin, which allows the latch to be moved to the open position.

**Note:** For specific installation and removal instructions refer to the attachment instructions.



Front and Mid Attachment Hitches (C-Series)



Front and Mid Attachment Hitches (D-Series)

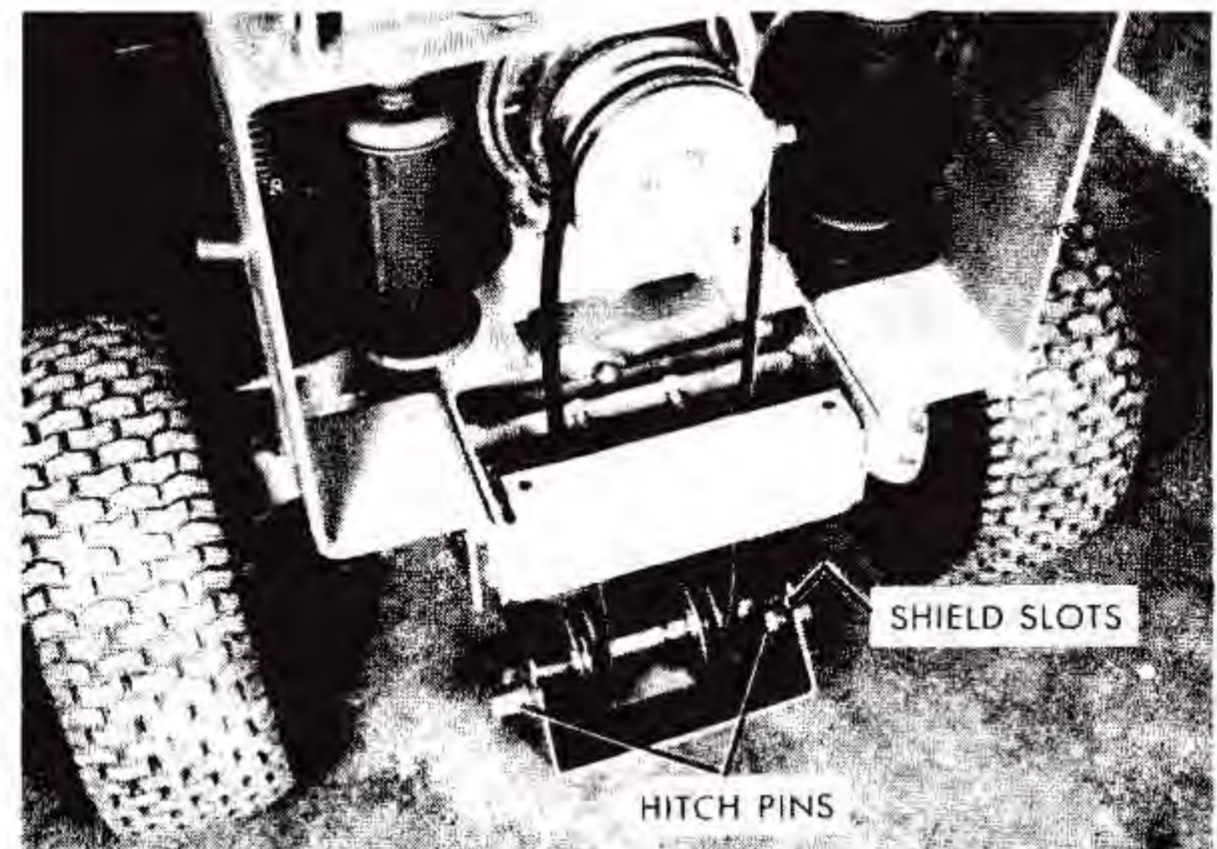
## ATTACHMENT BELTS

### D-SERIES

Attachment belts are installed and removed on the front PTO pulley after removing the front grille. To remove the grille proceed as follows.

**Note:** The grille is located near the mufflers and engine where considerable heat is generated; therefore, BE SURE THAT THE GRILLE IS COOL ENOUGH TO HANDLE.

**Removal:** Grasp grille with the two knobs provided. Lift up to compress the grille spring permitting the bottom of the grille rods to come out of their seating holes. Pull the bottom of the grille forward and remove the top of the grille rods from their seating holes at the top of the grille shroud.



PTO Belt Installation (D-Series)

### C-SERIES

1. Remove hairpin cotter from the trunnion and lift the trunnion out of the top plate.
2. Remove clevis pin from the clutch shaft and clevis.
3. Move the top plate forward and move the pulley assembly in toward the engine enabling the clevis to clear the clutch shaft; swing clutch rod housing (yoke) to the rear.
4. Install attachment belt.



PTO Belt Installation (C-Series)



5. Swing the clutch rod housing (yoke) to the front until the clevis lines up with the clutch shaft. Move the top plate to the rear. Line up the clevis with the hole in the clutch shaft and install clevis pin.
6. Insert trunnion in the top plate and secure with the hairpin cotter. If the rod-to-plate spring has become disengaged reconnect spring.

## OPERATION OF THE TRACTOR:

Because of the power of the tractor, no problem should be encountered using these attachments under normal conditions. On rough, hilly, or wet terrain, the addition of wheel weights (C & D-Series only) and tire chains (all models) will minimize rear tire slippage.

WHEEL HORSE DOES NOT RECOMMEND ADDING ANY OTHER WEIGHT, SUCH AS WATER OR CALCIUM CHLORIDE, TO THE REAR TIRES. THIS ADDITIONAL EXTRA WEIGHT CAN CAUSE EXTENSIVE TRANSMISSION DAMAGE.

### WITH A MOWER (All Models)

**⚠ WARNING ⚠**

Keep all shields and mower discharge chute in place. Never attempt to clear discharge areas or mower blades without disengaging the PTO clutch and removing the ignition key.

For best operation on average lawns, operate the engine at full throttle while controlling the ground speed with the transmission. The tractor should be operated at 2 to 3.5 MPH (3.2 to 5.6 KPH)\* while mowing grass. Uneven cutting is often the result of excessive ground speed. To correct, reduce the ground speed with the transmission. Average lawns are usually cut at a height between 2 and 3 in. (5-7.6 cm). Tall grass and weeds should be cut with the mower in it's highest position, making a second pass cutting to the height desired.

Always keep the mower blades sharp.

### WITH A SNOWTHROWER (C & D-Series)

**⚠ CAUTION ⚠**

Thoroughly inspect the area where the snowthrower is to be used. Remove all door mats, sleds, boards and other foreign objects. Never make any adjustments while the engine is running. Never try to clear the chute while the engine is running.

Snow removal will vary greatly with the condition of each snowfall. Light fluffy snow will be cleared with ease. Heavy wet snow will be more difficult. It is advisable to coat the auger and chute with a light coat of wax or paraffin to keep snow from sticking. Best results are usually attained when the tractor ground speed is set at 1 to 2 MPH (1.6 to 3.2 KPH).\*

Experience will teach you not to throw snow into the wind.

Care should be exercised whenever the snowthrower is engaged. The auger is capable of picking up sticks, stones and other foreign objects and expelling them with great velocity. Always aim the discharge chute away from persons or objects subject to harm.

Tire chains and wheel weights are recommended for use with the snowthrower.

### WITH A SNOW BLADE (B-Series)

The front end snow blade is used for snow removal. Care should be taken and a slow ground speed should be maintained whenever the blade is used. Impact with a solid object may result in injury to the operator and/or damage to the blade.

Tire chains may be added to improve rear tire traction.

### WITH A DOZER OR GRADER BLADE (C & D-Series)

Although the front end dozer blade is generally used for snow removal, it can also be used for moving dirt, sand or gravel. Care should be taken and a slow ground speed should be maintained whenever the blade is used. Impact with a solid object may result in injury to the operator and/or damage to the blade.

Grader blades are generally preferred for leveling sand, dirt or gravel. The operation of these blades is similar to that of a dozer blade. Rear mount grader blades may require special rear hitches; consult your dealer for the proper hitch(es) required for your tractor.

When using any of these attachments with the tractor, front wheel weights should be used to increase front wheel traction. Rear wheel weights and tire chains may also be used to increase rear wheel traction.

### WITH A TILLER (C & D-Series)

The Wheel Horse tiller does an excellent job of preparing gardens for planting.

D-Series tractors require a 3-point hitch and rear PTO (dealer installed options) for mounting a tiller.

Caution should be exercised when tilling virgin ground or clay as the tiller may have a tendency to push the tractor. This can be corrected by raising the tiller with the attachment lift so the tiller penetrates only the very top of the soil. The tiller can be lowered to its full depth on following passes.

**⚠ CAUTION ⚠**

If the tiller starts to push the tractor, shut the tiller off immediately by disengaging the PTO clutch.

Rear wheel weights and cleat tires or tire chains will reduce the pushing effect of the tiller.

Front wheel weights are recommended to improve the steering of the tractor.

The slower the tractor's ground speed, the more aggressive the action of the tiller. Best results are usually attained when the tractor ground speed is set at less than 1.0 MPH (1.6 KPH).\*

Do not over-till the soil. Soil tilled excessively will not hold water, and will compact easily.

\*Average walking speed is 2.5 MPH (4 KPH).

## **WITH A PLOW, DISC, CULTIVATOR, OR HARROW (C & D-Series)**

Plows and disc require maximum tractor efficiency. Cleat tires, or tire chains, as well as wheel weights increase rear tire traction. Front wheel weights add to the steering control of the tractor.

Some of these attachments require special rear hitches. Consult your dealer for the proper hitch(es) required for your tractor.

There are two methods of preparing a seed bed for planting.

1. Use a tiller, which will prepare the soil in one operation.
2. Use a plow to turn the ground, a disc to break up large clumps, and a harrow to pulverize and smooth the soil.

Plows are classified by the width of the furrow they will turn. Generally, plows are set to cut 4 to 6 in. (10-15.2 cm) deep.

A disc is used immediately after plowing. The disc will break the large clumps of soil.

After discing, generally, a spike tooth harrow is dragged over the soil. The spike tooth harrow helps

pulverize the soil and levels the seed bed. The soil should now be ready for planting.

The cultivator is used during the growing season to help remove unwanted weeds, and to help aerate plant roots. Generally, the width of the cultivator is taken into consideration before planting the seed bed to insure the cultivator fitting between the rows without damaging the crop roots.

## **WITH DRAWBAR TYPE ATTACHMENTS (All Models)**

Many attachments simply use the tractor as a towing vehicle. They are attached or removed from the tractor by the installation or removal of a single drawbar hitch pin.

Some of these attachments are powered by a separate gasoline engine, some are ground driven and some are simply towed, such as the dump cart.

In any case, all these attachments should be approached with the same amount of caution given any mechanical device. Always read each Operating Instruction Manual carefully before attempting to use the attachment. Keep children and pets away from the vehicle when in operation. Never allow any unauthorized personnel to operate the equipment.

# MAINTAINING YOUR TRACTOR

## ⚠ CAUTION ⚠

To minimize the chance of injury, perform all maintenance and adjustments on your tractor with the engine off and ignition key removed, unless instructed otherwise in this section. Use extreme care when working near operating machinery. Remove watch and jewelry before beginning work and observe common safety practices when using tools.

## MAINTENANCE CHECKLIST

	Before Each Use	After Each Use	Every 10 Hours	Every 25 Hours	Every 50 Hours	Every 150-200 Hours
<b>SERVICE OPERATION</b>						
Check:						
Engine Oil Level	X					
Battery Water Level	X					
Transmission Automatic Oil Level Manual	X			X		
Tire Pressures			X			
Tightness of all Attaching Hardware				X		
Clean Engine Cooling Fins		X				
Clean Transmission Cooling Fan (D-Series)		X				
Clean Air Filter B-Series, D-160				X		
C-Series, D-200					X	
Lubricate Chassis				X		
Change Engine Oil <sup>(1)</sup>				X		
Replace Engine Oil Filter (D-Series) <sup>(1)</sup>					X	
Inspect Spark Plugs					X	
Replace Spark Plug(s)						X
Inspect Breaker Points			100 Hours			
Replace Air Filter			100 Hours <sup>(3)</sup> / One Year <sup>(2)</sup>			
Change Transmission Oil (Automatic)			100 Hours/One Year <sup>(2)</sup>			
Replace Transmission Oil Filter (Automatic) <sup>(1)</sup>			100 Hours/One Year <sup>(2)</sup>			
Replace Fuel Filter (D-Series)			100 Hours/One Year <sup>(2)</sup>			
Clean and Lubricate PTO Clutch (D-200)			100 Hours/One Year <sup>(2)</sup>			

(1) Refer to text for initial service interval for new tractors.

(2) Whichever occurs first. (3) 200 hours, D-160.

**NOTE:** These service intervals are considered **MAXIMUM** under normal operating conditions. Increase frequency under extremely dirty or dusty conditions.

## ENGINE

### Oil Quality

For maximum engine protection under all operating conditions use API Service Classification "SE" oil in tractors equipped with Onan engines, and API Service Classification "SC" (formerly "MM"), "SD" (formerly "MS"), or "SE" oil in tractors equipped with Briggs & Stratton or Kohler engines. These letters may appear on the oil can singularly or in combination with other letters.

### Oil Level

Form the habit of checking the oil level regularly.

**Check the oil level of the engine every time the tractor is used. An improper oil level can cause extensive internal damage to the engine.**

To check the engine oil level, stop the tractor where the engine is level. Shut off the engine and remove key.

#### B-SERIES:

Remove the oil filler plug on the right side of the engine block by turning the cap counterclockwise. The oil level should be to the top of the oil fill tube. Add oil as necessary.

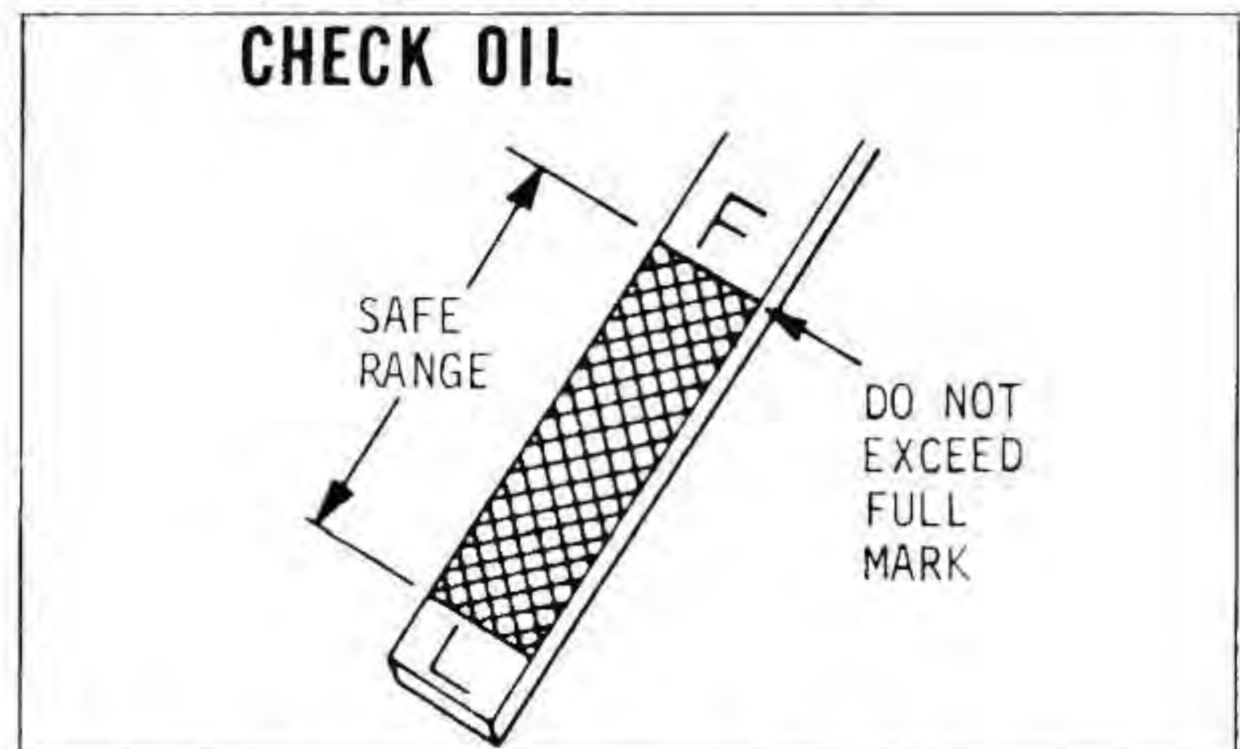
#### C-SERIES:

On single cylinder engines with oil filler tubes, remove the dipstick by twisting the cap slightly to loosen the seal and then pull the dipstick out of the tube. Single cylinder engines without oil filler tubes have a combination filler plug and dipstick located on the right side of the engine block. Turn the plug counterclockwise with a wrench to remove it.

Twin cylinder engines have a dipstick, and a separate oil filler plug. The filler plug is located at the top of the engine, just forward of the dipstick tube. Turn the plug counterclockwise with a wrench to remove it.

#### D-SERIES:

Remove the D-160 dipstick from the oil fill tube by twisting the cap slightly to loosen the seal and then pull the dipstick out of the tube. The D-200 dipstick is removed by turning the cap counterclockwise and then pulling the cap off the tube.

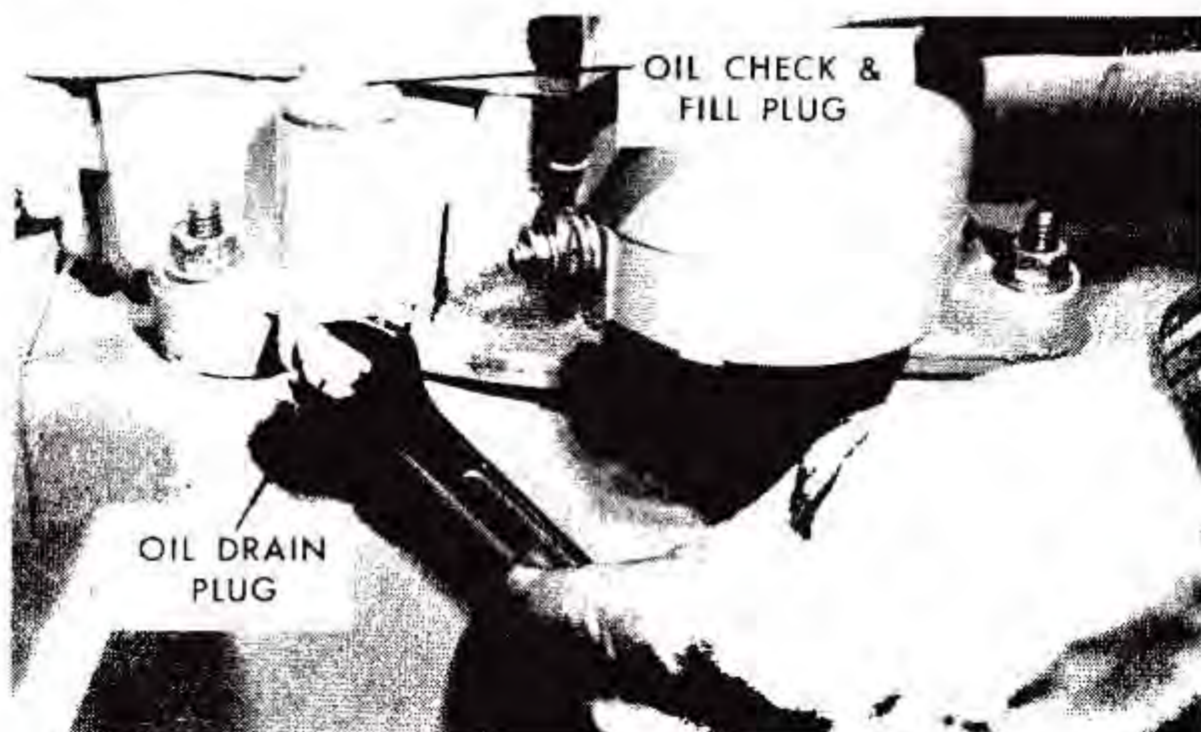


**Correct Oil Level — C & D-Series**

Wipe the dipstick with a clean lint free rag; insert it into the filler tube or engine block as far as it will go (dipsticks with threaded plugs should **not** be screwed back in when checking oil level). Remove the dipstick again and read the scale on the lower portion of the stick. Add oil as necessary.

**Never overfill the engine crankcase with oil. The oil level must not exceed the "F" level on the dipstick.**

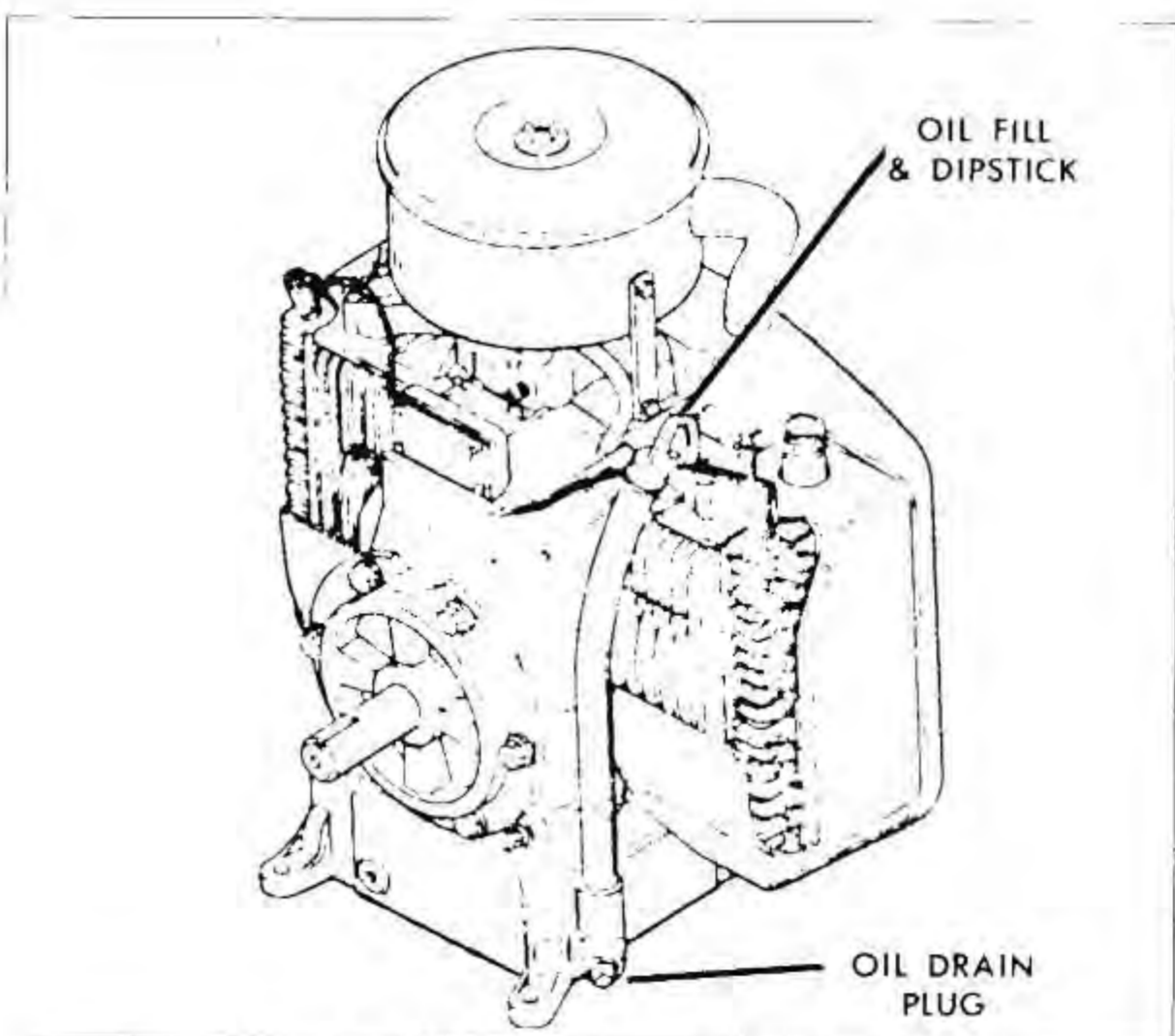
Be sure to add the same viscosity oil as is presently in the engine. New tractors are shipped with SAE 30 oil in the crankcase. It may be necessary to change the original oil before using the tractor if the tractor will be operated in cold weather.



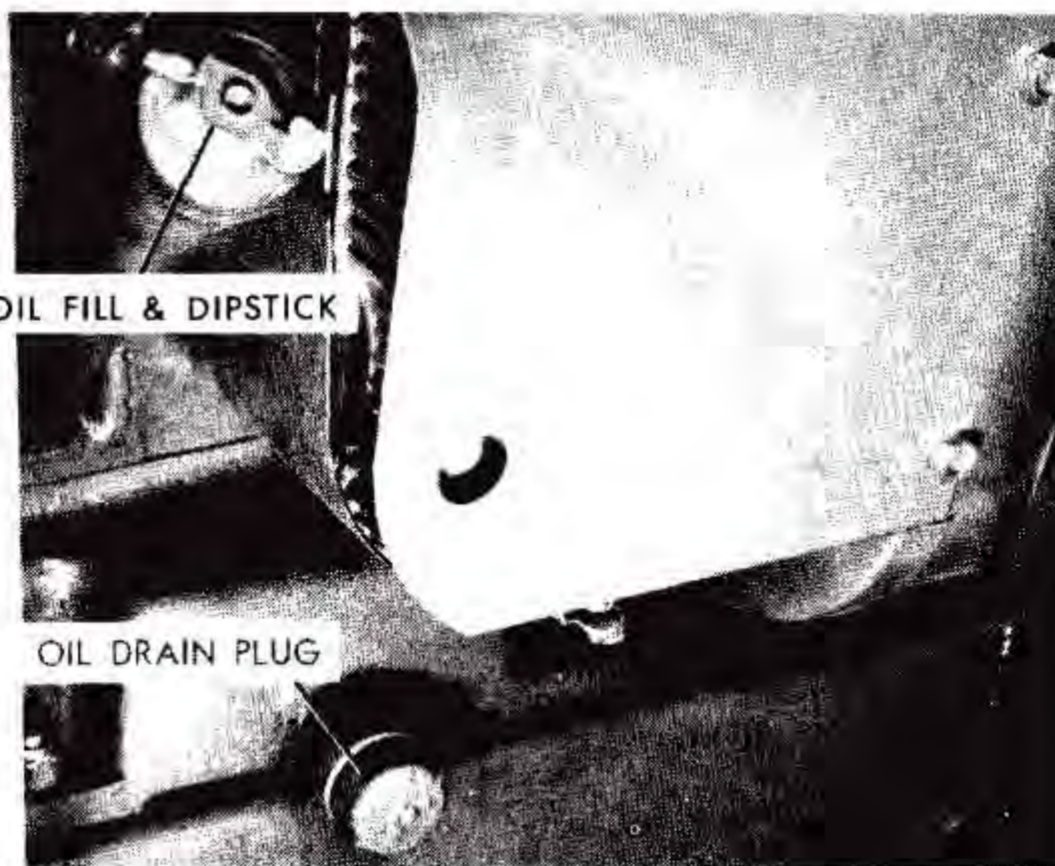
**B-Series Oil Fill and Drain Plugs**



**C-Series Filler Plug/Dipstick**



**D-160 Oil Dipstick and Drain Plug**



**D-200 Oil Dipstick and Drain Plug**

### Oil Changes

The engine oil in your new Wheel Horse should be changed after the first 2 hours of operation. Thereafter, the oil should be changed at 25 operating hour intervals. If operating conditions are extremely dusty or dirty the frequency of oil changes should be increased.

**Failure to change the engine oil (and oil filter on D-Series models) at recommended intervals can lead to serious damage to the engine. This is especially true when using detergent oils which are designed to hold impurities in suspension; when the saturation point is reached, the oil may suddenly break down to form a gelatin like substance which seriously impairs and can even stop the flow of oil. Increase the frequency of oil and oil filter changes if the tractor is operated under extremely dusty conditions.**

Before changing the oil, start the engine and allow it to warm up. This will allow the oil to flow more freely. Shut off the engine and remove the key.

**Disconnect the spark plug wire(s) to prevent accidental starting of the engine when changing oil.**

Open the oil drain. Locations of oil drain plugs for B and D-Series engines are shown in the "Oil Level" section of this manual. The C-81 and C-171 engines have a capped drain tube extending from the lower left side of the engine, near the frame rail. All other C-Series engines have an oil drain plug located on the underside of the engine, toward the front of the tractor. After the oil has drained completely, reinstall the drain plug or cap as applicable.

Remove the oil filler plug or dipstick and add the proper amount of oil for your engine according to the following chart. Also shown are charts for selecting the correct oil type and oil viscosity. When using the temperature — viscosity chart, select the air temperature most likely to be encountered within the next 25 hours of operation.

## ENGINE OIL CHANGE

Tractor Model	Crankcase Oil Capacity
B-81	1 1/8 quarts (1.1 liters)
B-111	1 1/2 quarts (1.4 liters)
C-81	1 1/4 quarts (1.2 liters)
C-101	1 1/2 quarts (1.4 liters)
C-121	1 1/2 quarts (1.4 liters)
C-141	1 1/2 quarts (1.4 liters)
C-161	1 1/2 quarts (1.4 liters)
C-171	1 3/4 quarts (1.6 liters)
D-160	1 1/2 quarts (1.4 liters)
D-200	3 quarts (2.8 liters)**

\*2 quarts (1.9 liters) with filter replacement

\*\*3 1/2 quarts (3.3 liters) with filter replacement

## ENGINE OIL TEMPERATURE — VISCOSITY CHART

### Briggs & Stratton Engine

Air Temperature	Oil Viscosity
Above 40°F (4°C)	SAE 30, 10W-30, 10W-40
60° to 0°F (16° to -18°C)	SAE 10W-30, 10W-40
Below 20°F (-6°C)	SAE 5W-20, 5W-30*

### Kohler Engine

Above 32°F (0°C)	SAE 30
Below 32°F (0°C)	SAE 5W-30

### Onan Engine

Above 32°F (0°C)	SAE 30
Below 32°F (0°C)	SAE 5W-30

\*If not available, a synthetic oil with a viscosity of 5W-20, 5W-30 or 5W-40 may be used.

## ENGINE OIL TYPE

Engine	Oil Type
Kohler	API Service SC, SD, or SE
Briggs & Stratton	
Onan	

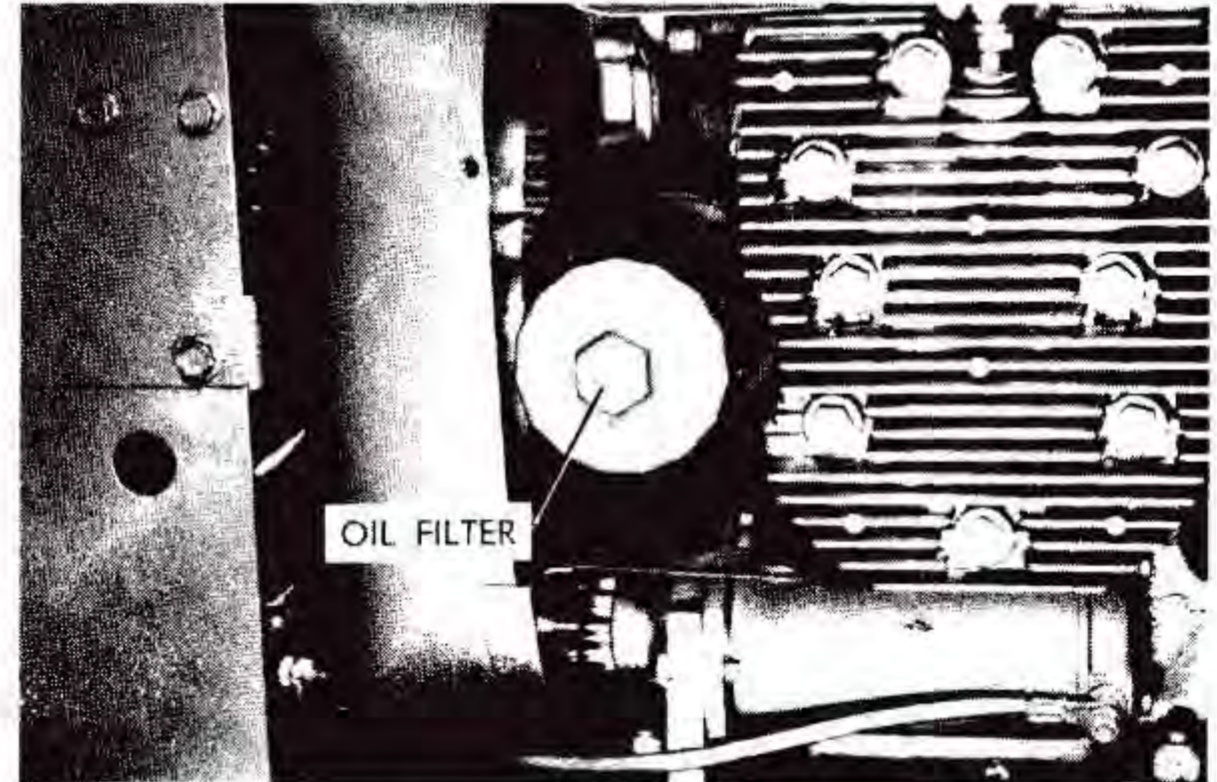
After adding the prescribed amount of oil, check the oil level. Add oil as necessary to bring the oil to the "Full" level in B-Series engines or into the "Safe" range on the dipstick in C and D-Series engines.

**NEVER overfill the engine crankcase with oil. The oil level must not exceed the "F" level on the dipstick.**

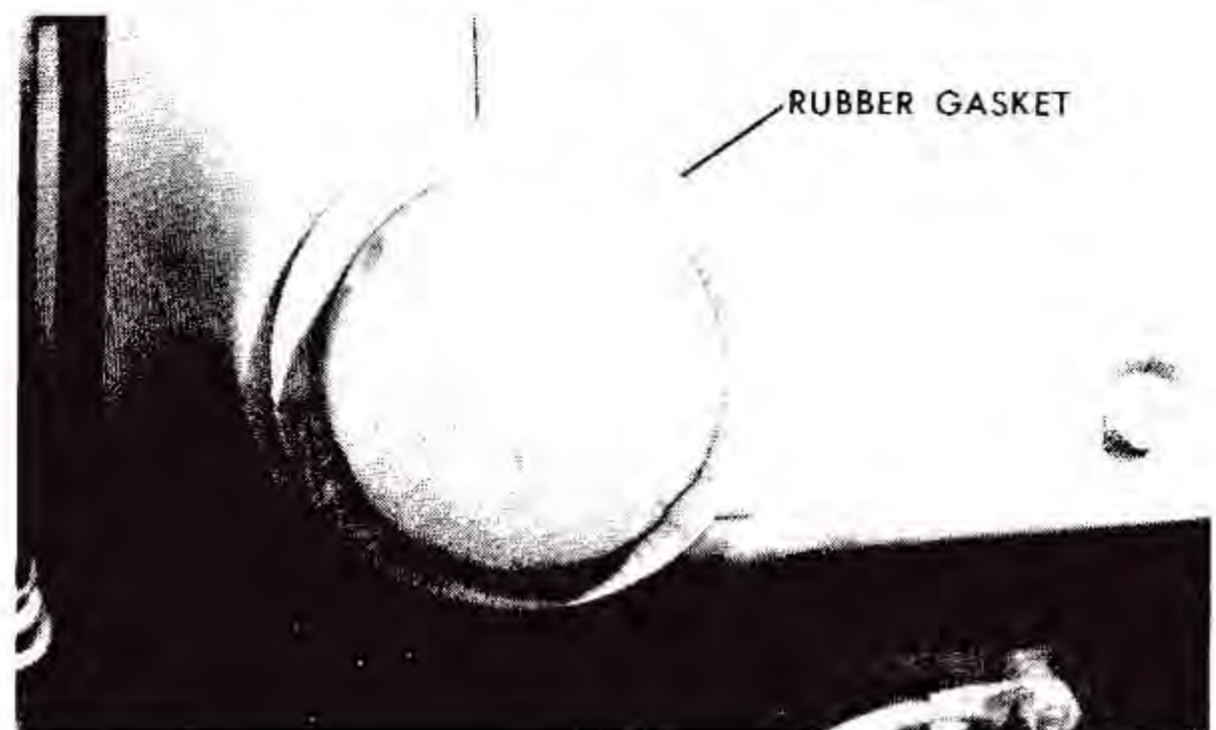
## Oil Filter (D-160, D-200)

The engine in D-160 and D-200 tractors is equipped with a full flow oil filter. The filter should be replaced along with the engine oil after the first 2 hours of operation. Thereafter, the filter should be replaced at 50 operating hour intervals (every second oil change), or sooner if the tractor is operated under extremely dusty conditions.

To replace the engine oil filter, first drain the old oil from the engine crankcase. Remove the right side engine baffle on D-200 tractors; remove the rubber gasket from around the filter on D-160 tractors.

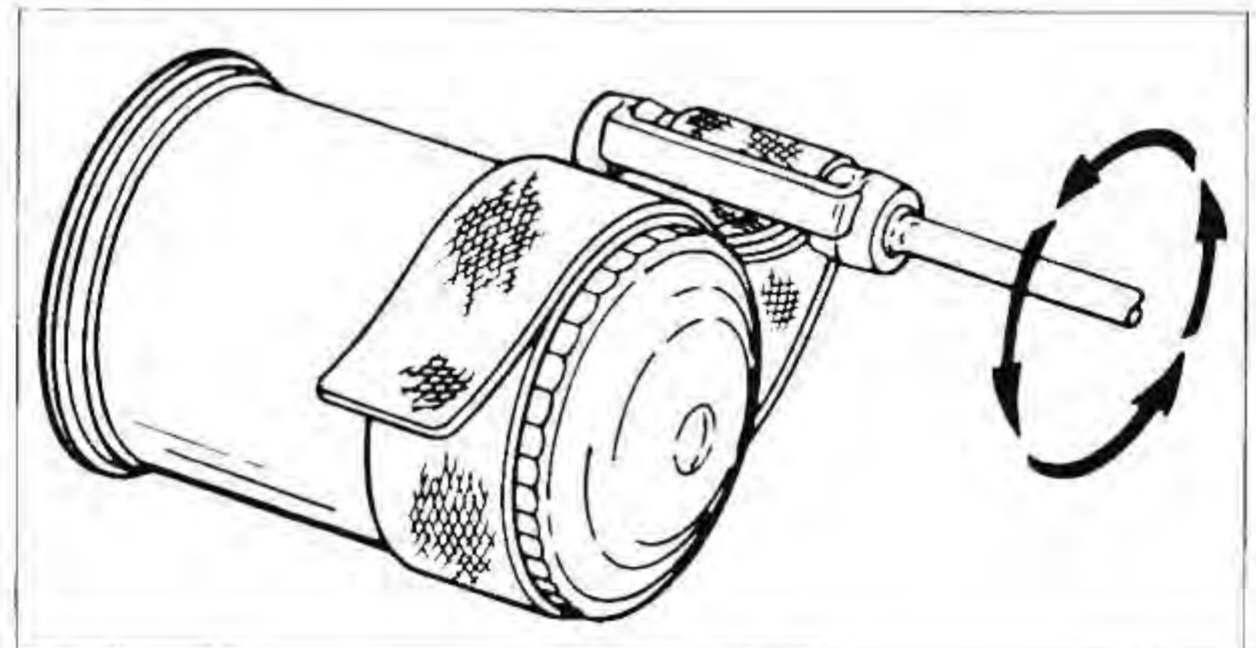


Right Side Engine Baffle Removed, D-200



Engine Oil Filter, D-160

Clean the area around the filter of any debris or dirt. Place a pan and rags below the filter to catch any spillage that may occur during removal of the filter. Using a strap wrench or a wrench designed to remove cartridge type oil filters, remove the filter by turning in a counterclockwise direction. Discard the old filter.



Remove Oil Filter, D-Series

Coat the rubber gasket on the new filter with engine oil. This will insure a good seal between the filter and the engine.

Install the filter by turning in a clockwise direction.

**Hand tighten oil filter only; turn filter until the rubber gasket contacts the engine block, then tighten an additional ¼ to ½ turn. Excessive tightening or use of a wrench or other mechanical device can cause damage to both the filter and the engine.**

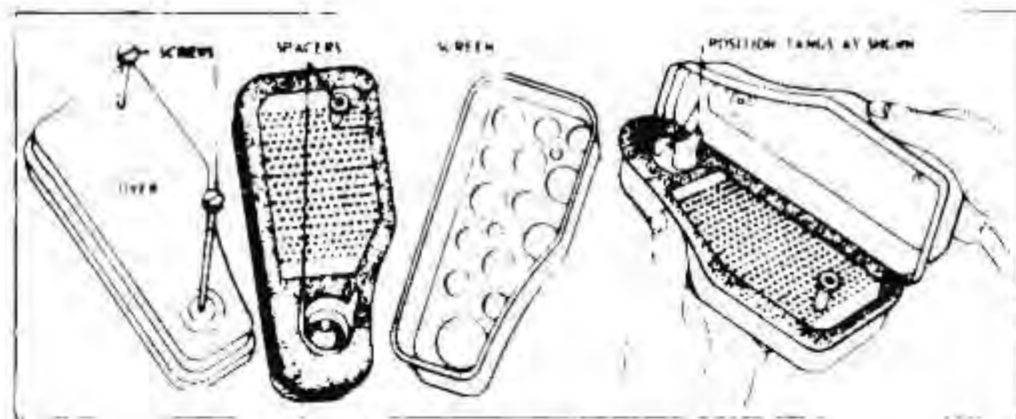
### Air Filter

Dirt induced through improperly installed, poorly serviced, or inadequate air filter elements, is more often the cause of a worn out engine than long hours of operation. A small amount of dirt will destroy a set of piston rings in a matter of hours. A clogged element causes a richer fuel mixture which wastes gasoline, and may lead to the formation of harmful sludge deposits.

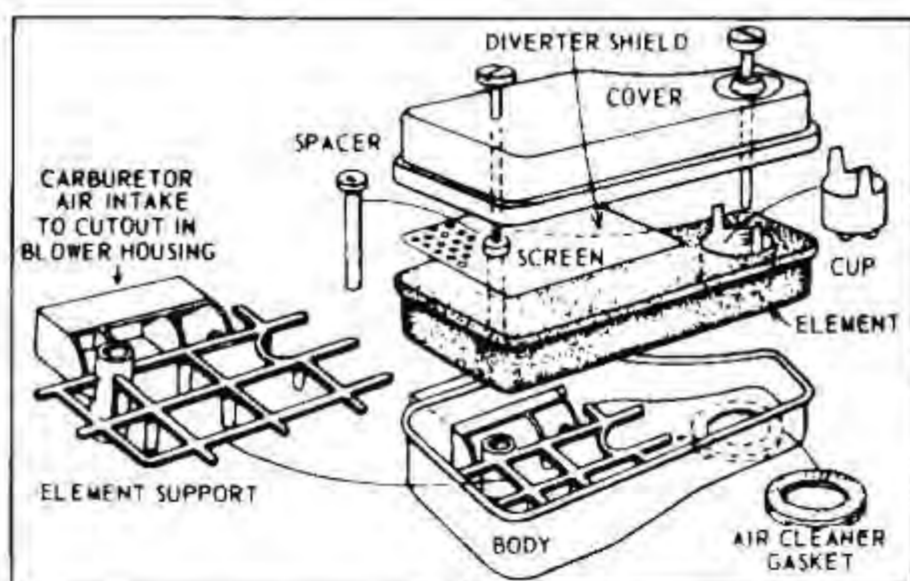
Clean the engine air filter on B-Series and D-160 tractors after every 25 hours of operation, and after every 50 hours of operation on C-Series and D-200 tractors (more often if the tractor is operated under extremely dusty conditions).

Replace dry type filter elements at 100 hour (200 hour, D-160) intervals, or once a year, whichever comes first. The foam type elements used on B-Series vehicles may be serviceable for more than 100 hours or one year of operation, provided the element shows no sign of deterioration and can still be cleaned satisfactorily. As with cleaning the filter, replacement intervals must be shortened when operating under extremely dusty conditions. To protect your engine, use only the manufacturer's replacement filter, or replacement filters with equivalent specifications.

**To prevent any dirt or other contaminants from entering the engine, always cover the carburetor air horn when the air cleaner is removed.**



**B-81 Air Cleaner**



**B-111 Air Cleaner  
B-Series Air Cleaners**

### B-SERIES:

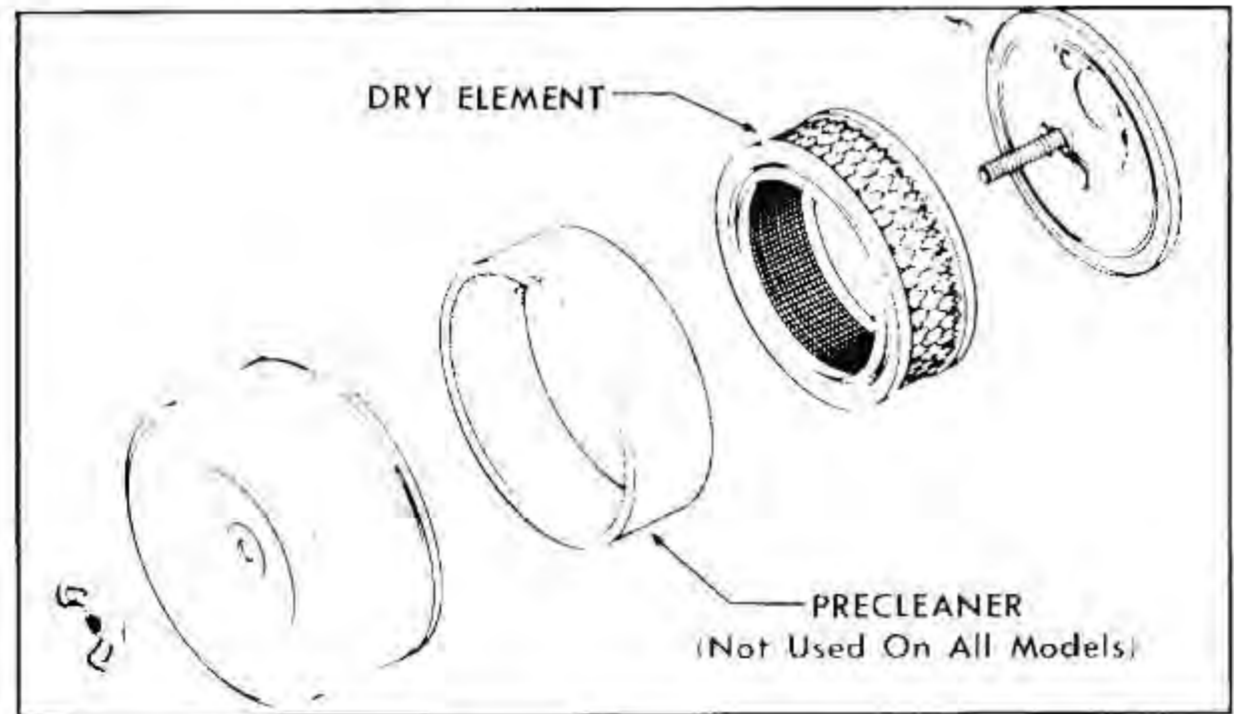
To service the air filter, remove the two screws and lift off the complete air cleaner assembly. Remove the screen and spacers from the foam element and remove the element from the body of the air cleaner.

Wash the foam element in a solution of liquid detergent and water. Wrap the foam in a clean cloth and squeeze dry. Saturate the element in clean engine oil (same viscosity as is presently being used in the engine) and squeeze to remove excess oil.

Reassemble the air cleaner and reinstall on the carburetor. When assembling, make certain the lip of the foam element extends over the edge of the air cleaner body. The foam element will form a protective seal.

### C-SERIES AND D-200:

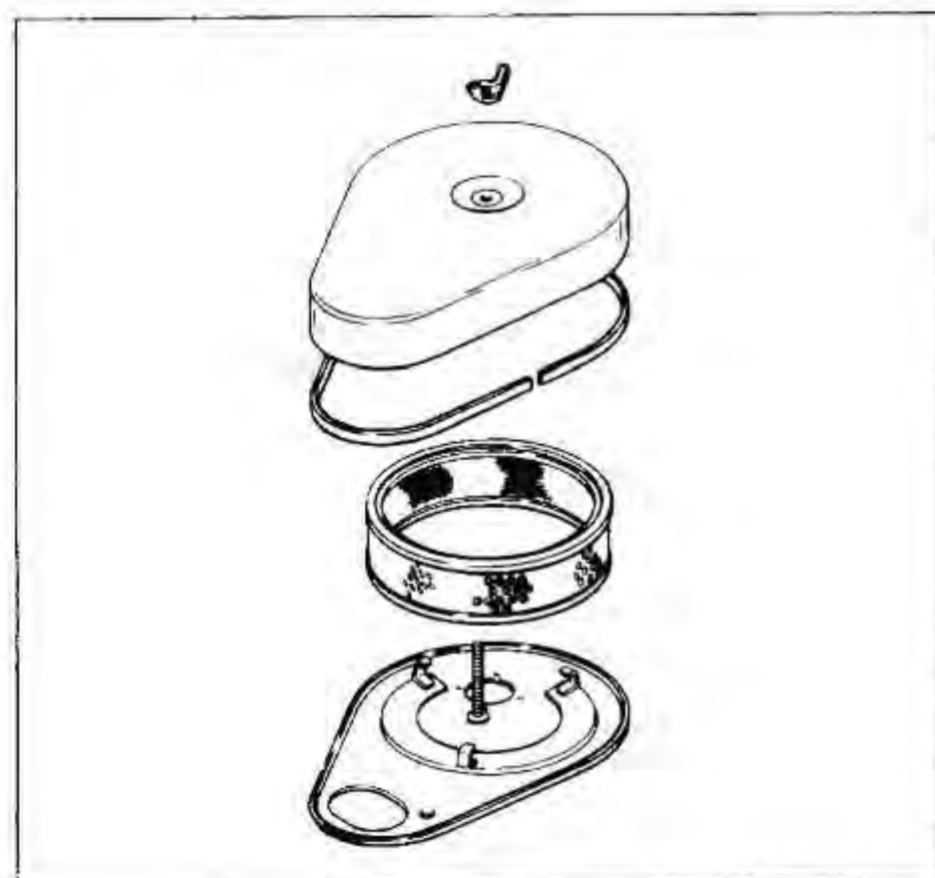
The dry type air filter element installed on C-Series and D-200 engines is cleaned by tapping it lightly on a flat surface to remove loose dirt particles. Replace the element if dirt does not drop off easily. **DO NOT** wash elements in any liquid or attempt to blow dirt off with compressed air as this will puncture the filter element.



**C-Series and D-200 Air Cleaner**

Check the following when installing a new or serviced element:

1. Back plate must be securely tightened to carburetor. Replace back plate if bent or cracked.
2. Gasket surfaces of element must be flat against back plate and cover to seal effectively.
3. Wing nut(s) must be finger tight — **don't over-tighten.**



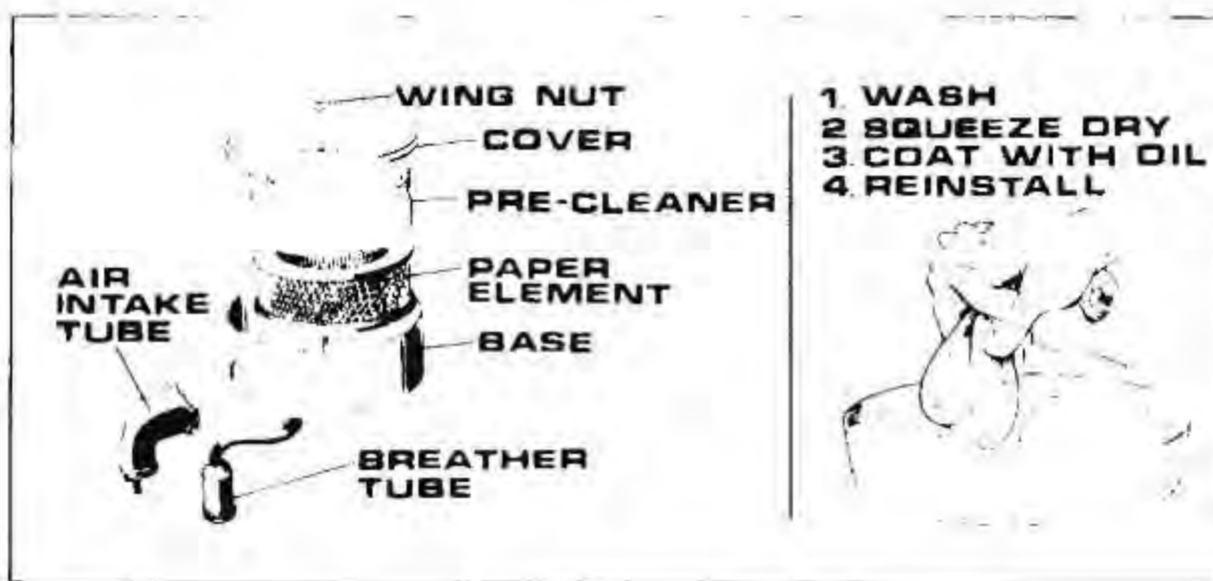
**C-171 Air Cleaner**

The D-200 and some C-Series engines are equipped with a pre-cleaner slipped over the dry element, which traps much of the dirt and prevents it from entering the dry element. Servicing of the pre-cleaner is accomplished by washing it in soap and water, rinsing, then squeezing out the excess water and allowing it to dry. **DO NOT OIL THE PRECLEANER.**

#### D-160:

A dry type element with pre-cleaner is used on the D-160's engine. Cleaning of the filter element, plus the checks to make when installing a new or serviced element, are the same as described in this section under "C-Series and D-200". The pre-cleaner is serviced as described in the following paragraph.

To clean the pre-cleaner wash in water and detergent, remove excess water by squeezing like a sponge and allow to thoroughly dry. Distribute three table-spoons of SAE 30 engine oil evenly around the pre-cleaner.



D-160 Air Cleaner

### Spark Plug(s)

Engine misfire, or generally poor operation, is often caused by spark plug(s) in poor condition or with incorrect spark gap setting. The spark plug(s) should be checked after each 50 hours of operation. Replace the spark plug(s) at 150-200 operating hour intervals, or sooner if inspection reveals fouling or excessive deterioration.

Always clean the area around the spark plug before removing to prevent dirt from entering the engine. Use a spark plug wrench to remove and install the plug(s).

Check the condition of the plug(s). Good operating conditions are indicated by a light coating of gray or tan deposit. A dead white, blistered coating could indicate engine overheating. A black coating could indicate an "overrich" fuel mixture caused by a clogged air cleaner, or improper carburetor adjustment.

Replace spark plugs that are not in good condition. **Never sandblast, wire brush, scrape or otherwise service spark plugs in poor condition. Best results are obtained with new plugs.**

Always check the spark plug gap before installing new plug(s) or reinstalling the original plug(s). Use a spark plug gap gauge to adjust the electrode air gap to the specification for your engine:

Tractor Model	Plug Gap
B-Series	.030 in. (.8 mm)
C-Series & D-160	.025 in. (.6 mm)
D-200	.035 in. (.9 mm)

Tighten spark plug(s) to 22 ft. lbs. (30 Nm).

### Breaker Points and Condenser

The condition and adjustment of the breaker points greatly affects engine operation. If the point surfaces are burned or badly oxidized, little or no current will pass; as a result, the engine may not operate at all, or if it does run, it is likely to "miss", particularly at full throttle. An improper engine breaker point gap can also result in erratic engine operation, since an incorrect gap changes ignition timing.

The engine breaker points should be inspected, cleaned, and the gap reset at 100 operating hour intervals. Points that are in poor condition due to excessive pitting or burning should be replaced.

The primary function of the condenser is to minimize arcing across the breaker points. Under normal operating conditions, a small amount of metal transfer (pitting) will occur between the point surfaces. If the condenser fails, excessive pitting or burning of the points will occur over a short period of time. A shorted condenser grounds the ignition system and results in no output voltage to fire the spark plug(s). The condenser is usually replaced each time the breaker points are changed.

Access to the breaker points requires a significant amount of disassembly on some engines and, in some cases, special tools. In addition, other adjustments affecting engine timing may be necessary after replacing or adjusting the breaker points. For these reasons, it is suggested that ignition system service be performed by an authorized dealer.

### Carburetor Adjustment

Carburetors are adjusted in the factory and should not have to be reset. If, however, one of the following conditions is noted, the carburetor should be readjusted immediately as continued operation with incorrect setting can lead to fouled spark plugs, overheating, excessive valve wear or other problems. If black exhaust smoke is noted, check the air cleaner first — an "overrich" mixture is usually caused by a poorly serviced, clogged air cleaner element, not an improperly adjusted carburetor.

CONDITION	POSSIBLE CAUSE/PROBABLE REMEDY
A. Black, sooty exhaust smoke, engine sluggish.	A. Mixture too rich — readjust main fuel needle.
B. Engine misses and backfires at high speed.	B. Mixture too lean — readjust main fuel needle.
C. Engine starts, sputters and dies under cold weather starting.	C. Mixture too lean — readjust main fuel needle.
D. Engine runs rough or stalls at idle speed.	D. Idle speed too low or improper idle adjustment — readjust speed then idle fuel needle if needed.

### Carburetor Adjustment Chart

Correct carburetor adjustment requires a significant amount of knowledge as well as special equipment, such as a good tachometer. In addition, other adjustments, such as governor settings, may also be necessary after adjusting the carburetor. For these reasons, it is suggested that carburetor adjustments be performed by an authorized dealer.

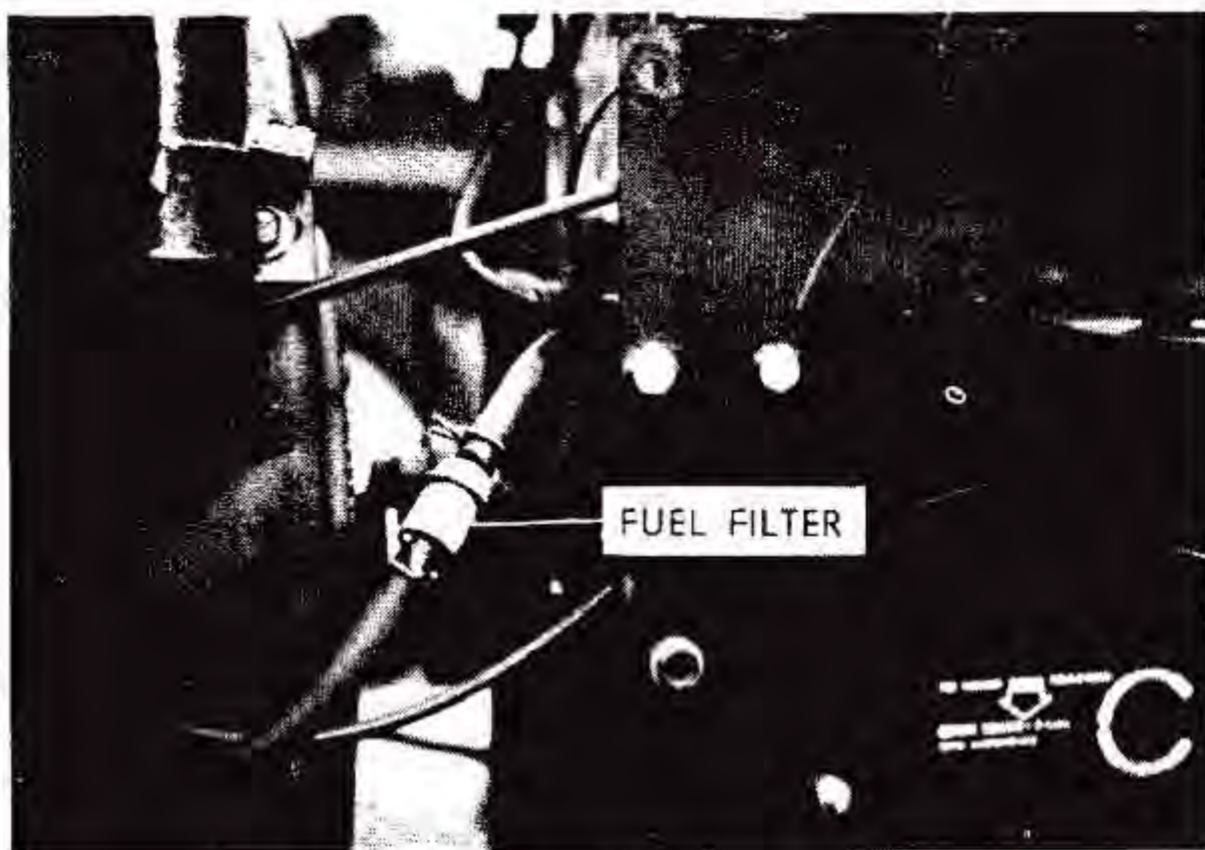
## Fuel Filter

A fine-mesh screen type strainer is incorporated into the fitting at the bottom of the fuel tank, which filters foreign matter from the gasoline before it reaches the carburetor. This strainer normally requires service only if the fuel supply becomes severely contaminated.

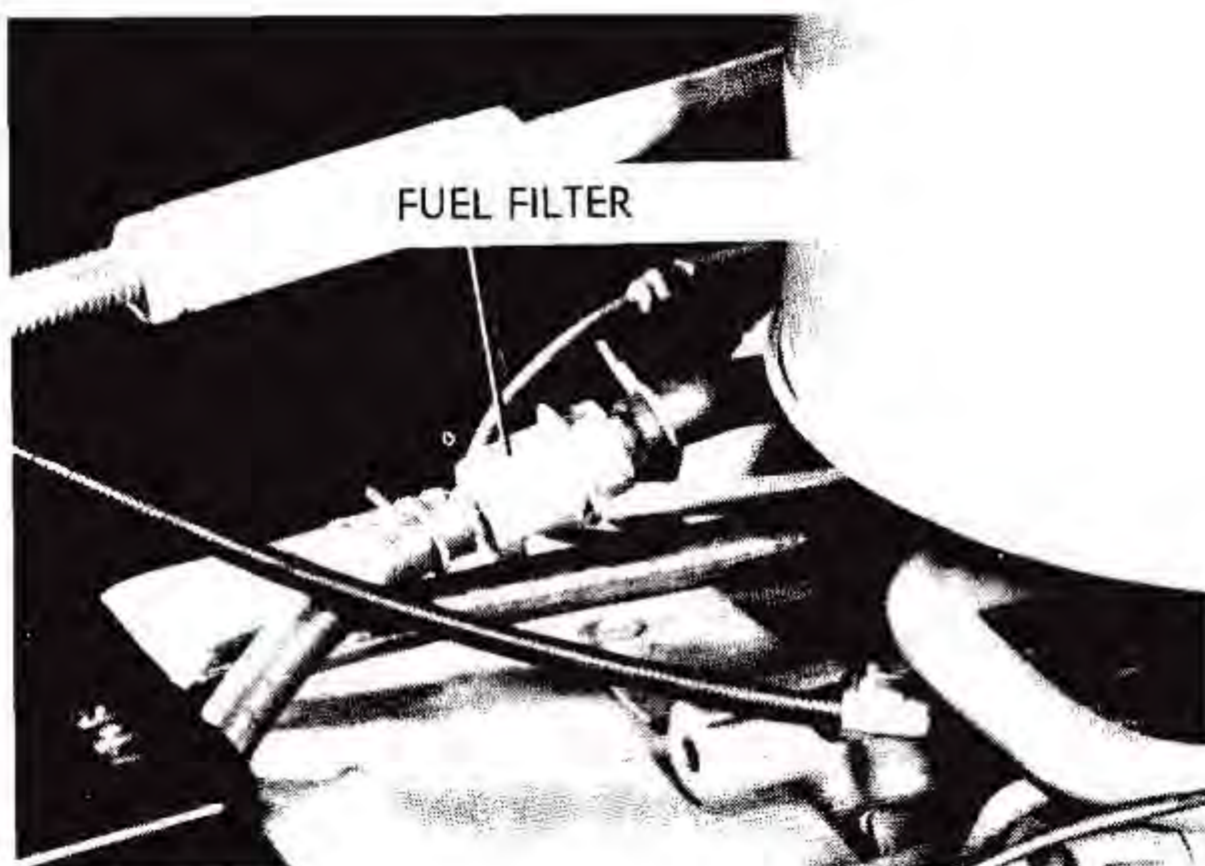
Always clean the area around the fuel cap before removing it to prevent excessive amounts of dirt from entering the fuel system. Also insure that the fuel storage container you are using is clean and in good condition.

The fuel filter gives only limited protection against moisture in the fuel system. Keep the fuel tank full during winter operation, when cold and damp weather conditions can cause moisture to condense in the tank.

D-Series tractors are also equipped with an in-line fuel filter. This filter should be replaced after each 100 hours of operation or at 1 year intervals, whichever occurs first.



D-160 Fuel Filter



D-200 Fuel Filter

## CHARGING AND ELECTRICAL SYSTEMS

### Alternator

An alternator is used to charge the battery. The alternator charging system normally requires no service other than periodically checking that all exposed wiring and electrical connections on the tractor are clean, tight and in good condition.

**Proper polarity is critical with an alternator equipped charging system. Always disconnect the battery ground cable (negative) before working on any part of the electrical system. Verify all components are connected correctly before reconnecting the ground cable (negative) or damage to alternator system components will result.**

**Never run the engine if the battery is removed, or if the battery is not connected to the charging system. Serious damage to charging system components may result.**

### Main Fuse

A 25 amp 3AG fuse is used to protect the control circuit of the electrical system. The fuse is enclosed in a fuse capsule connected between the ignition switch and the starter solenoid. On D-Series tractors, the fuse is located just behind the battery. On C-Series tractors, the fuse is located between the battery and the engine. On B-Series tractors, the fuse is located to the right of the battery.

### Light Circuit and Fuse

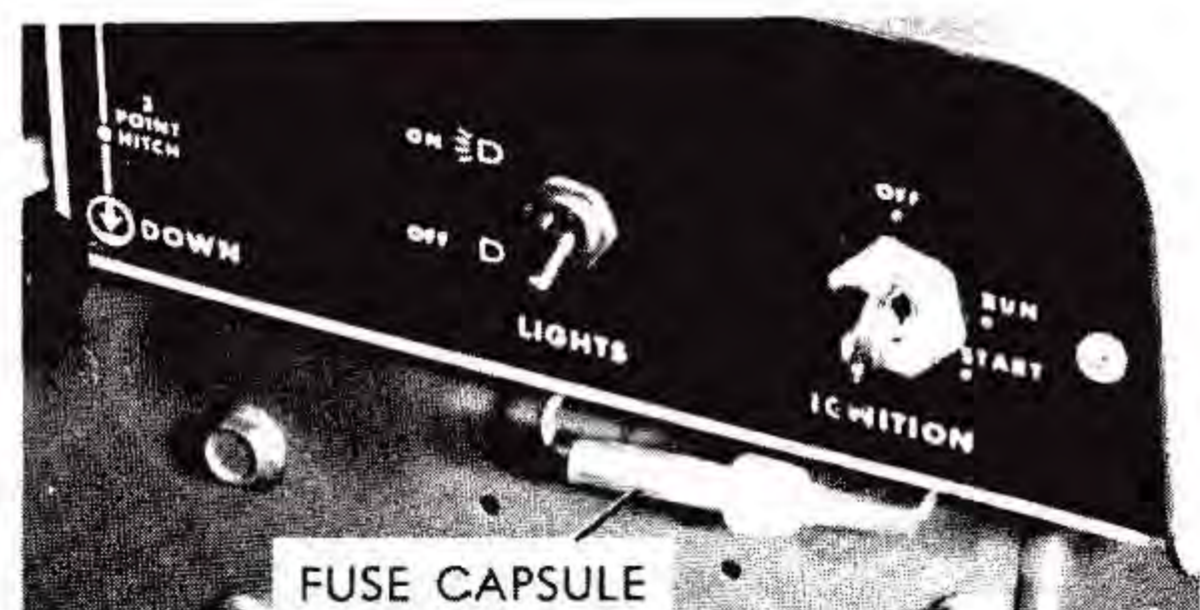
#### B-111:

The alternator on B-111 tractors has a separate circuit for operating the lights. The alternator output for this circuit is ALTERNATING CURRENT (A.C.). For this reason the lights will not operate without the engine running.

Never interconnect the A.C. light circuit and the D.C. battery circuit as this may result in serious damage to the charging system.

#### C-121, C-141, C-161, C-171, D-SERIES:

The light circuit on C-121, C-141, C-161, C-171 and D-Series tractors is powered by the battery. The lights will operate when the ignition switch is in the Run position. A 20 amp SFE fuse is part of the light circuit. The fuse is contained in a fuse capsule connected between the ignition switch and the light switch, behind the dash panel on C-Series models, and just below the edge of the instrument panel on D-Series models.



Light Fuse Capsule (D-Series Shown)



## Battery

### ⚠ CAUTION ⚠

When servicing the battery or any other part of the electrical system, or if the battery must be removed for any reason, always disconnect the negative (ground) cable **FIRST** and reconnect it **LAST** to avoid the possibility of electrical shorts.

Maintain the electrolyte level above the plates in each cell by adding distilled water as necessary. The best time to add water is just prior to operating the tractor so the water will mix with the solution. Do not overfill the battery. The electrolyte solution is corrosive and overfilling can cause damage to surrounding metal parts. The battery should be maintained at 1.260 specific gravity charge. When the battery has been out of the tractor for servicing, take care to connect the cables to the battery exactly as they were before removal.

For longest service life, the battery should be kept clean by wiping it off with a paper towel. Any corrosion around the battery terminals should be removed by applying a solution of one part baking soda to four parts water. A light coating of grease may be applied to all exposed terminal surfaces to prevent corrosion.

At temperatures below 32°F (0°C), the full charge state must be maintained to prevent cell electrolyte from freezing and causing permanent battery damage.

## Light Bulb Replacement

Headlight and tail light bulbs (on models so equipped) are replaced as described below. Care should be taken when handling the bulbs, particularly if they are broken.

### B & C-SERIES:

To replace the headlight bulbs, first remove the screws securing the headlight lens. Push the bulb down in its socket and turn counterclockwise to remove it.

To replace a tail light bulb, pry the lens off with a screwdriver. A slot is located at each end of the lens for this purpose. Push the bulb down in its socket and turn counterclockwise to remove it.

### D-SERIES:

Either sealed beam headlamp unit is replaced by disconnecting the terminal wires and pushing the headlamp out of the rubber grommet. The headlamp is installed by inserting it into the rubber grommet from the front, making sure the locating tab on the lamp is seated properly in the notch provided in the rubber grommet. Reconnect wires to the same terminal from which they were removed. Looking at the sealed beam unit from the rear, the yellow (hot) wire connects to the left terminal and the red (ground) wire connects to the right terminal.

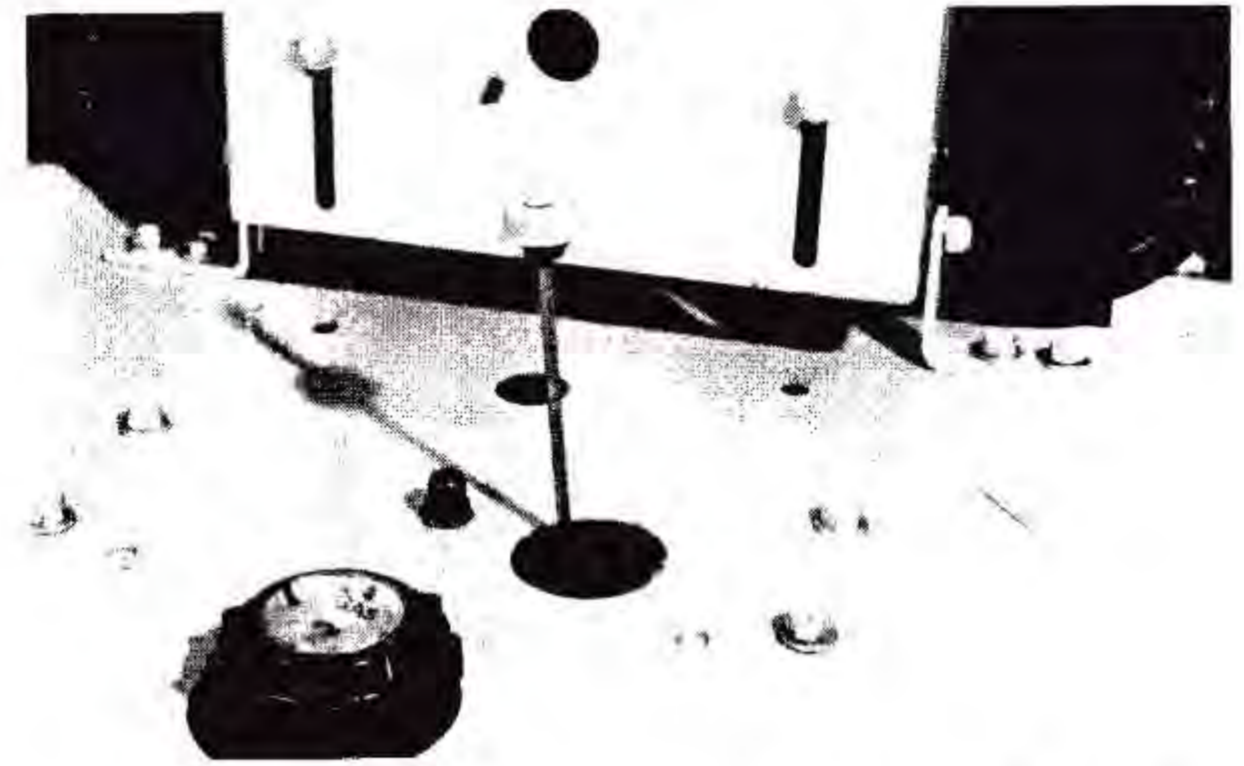
The tail light bulbs are replaced as described in this section for B & C-Series tractors. The dash panel light bulb (D-200 only) is replaced by unscrewing the bulb cover; push down on the bulb and turn counterclockwise to remove it.

## AUTOMATIC TRANSMISSION

### Oil Quality

The hydrostatic transmission in your new Wheel Horse requires premium quality motor oil, with a viscosity of 10W-30 or 10W-40. Use only premium quality oil.

### Oil Level

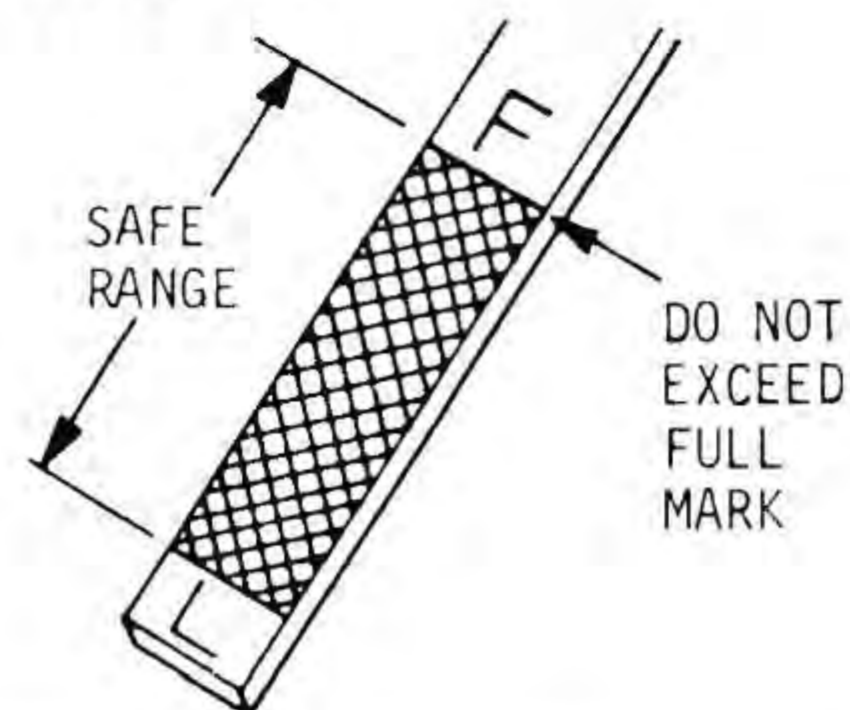


Automatic Transmission Dipstick (C-Series Shown)

The lubricant level should be checked before each use. The dipstick is located in a filler tube coming up from the transmission. Remove the dipstick and clean the stick with a clean lint free rag. Replace the dipstick and remove again. The oil level should be maintained between the "F" and "L" levels on the dipstick. Never operate the tractor with the oil **BELOW** or **ABOVE** the marks on the dipstick. Add oil as necessary. Replace dipstick.

Use care to prevent dirt, clippings or other foreign material from entering transmission during oil level checks, oil fillings, or oil changes.

## CHECK OIL



### Oil Changes Correct Oil Level

Drain and refill the transmission oil once per year, or after 100 hours of operation, whichever occurs first.

The oil is drained by removing the pipe plug at the bottom of the transaxle. The plug is located near the rear end of the transaxle, approximately in the center.

Because the transmission will not drain completely, check the transmission oil level while refilling, to prevent overfilling the system. The approximate refill capacity is 5.5 quarts (5.2 liters) for C-Series tractors and 6 quarts (5.7 liters) for D-Series tractors.

### Oil Filter

Replace the oil filter after the first 10 hours of operation. Thereafter, replace the filter with each transmission oil change (100 hours or one year, whichever occurs first).



Transmission Oil Filter (D-Series Shown)

### Cooling Fan

D-Series tractors are equipped with a fan to help keep the transmission cool. The fan is located under the seat for easy access. Clean the fan guard after each use. Keep the area around the fan clear of grass clippings and chaff.

## 8-SPEED TRANSMISSION

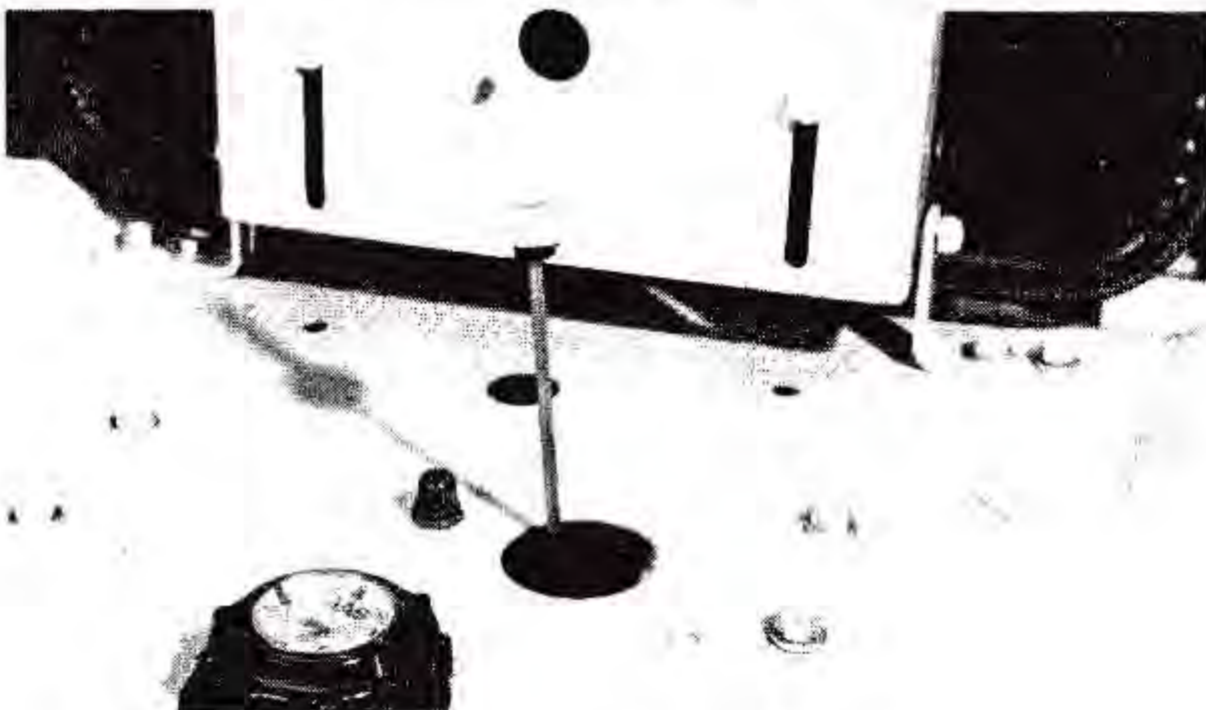
### Oil Quality

The mechanical transmission in your new Wheel Horse is filled with gear oil. The same type oil must be used whenever the transmission needs filling:

Transmission	Oil	Capacity
8-Speed	SAE 140 API Service GL-5	2 qt. (1.9 l)

### Oil Level

The lubricant level should be checked after every 25 hours of operation. Changing the lubricant is not



8-Speed Transmission Dipstick

required except for major service. To check lubricant level remove the dipstick from the transmission case. Maintain oil at the "full" level on the dipstick.

Use care to prevent dirt, clippings or other foreign material from entering transmission during oil level checks, oil fillings, or oil changes.

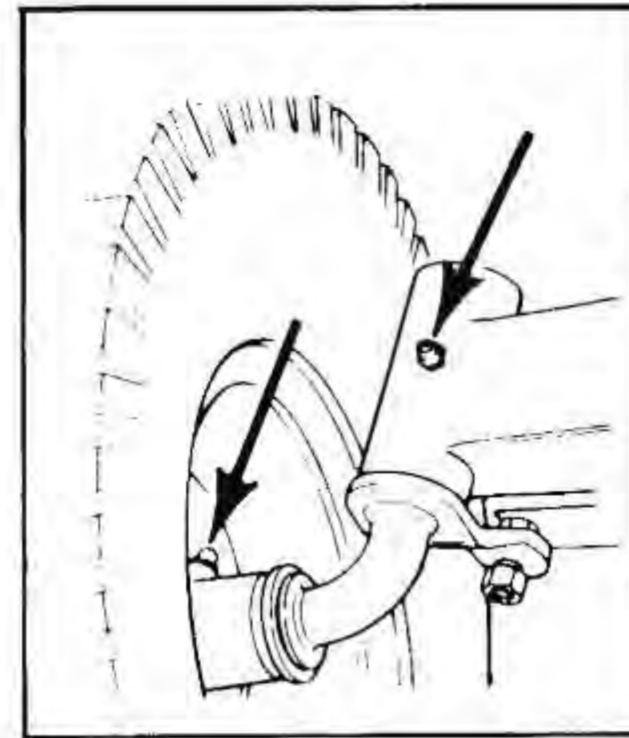
## 6-SPEED TRANSMISSION

The 6-Speed transmission is packed with grease at the factory; checking the transmission lubricant is not required.

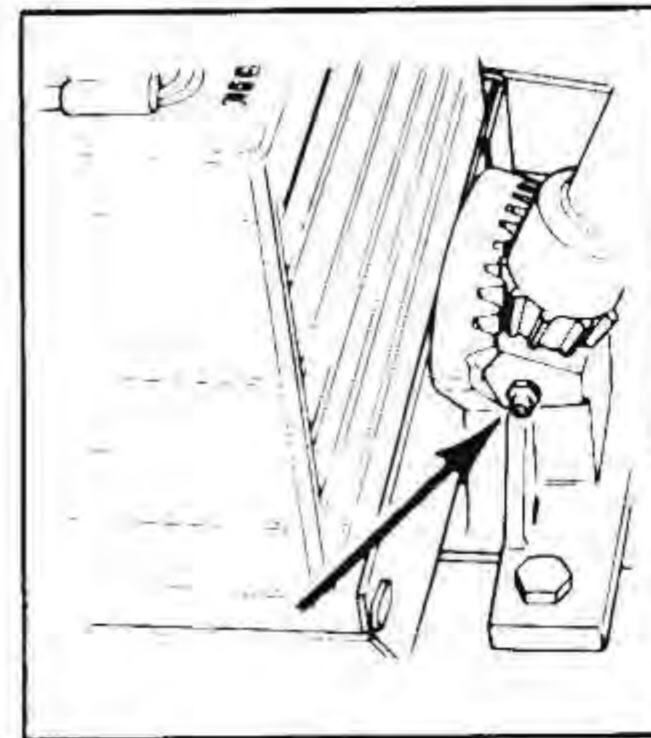
## CHASSIS LUBRICATION

The steering gear, spindles, front wheel bearings and front axle pivot are equipped with fittings to facilitate lubrication with a pressure grease gun. D-Series models have an additional zerk fitting located on the steering bell crank. Before applying the grease gun, clean the zerk fittings carefully to prevent dirt from being forced into the fitting. After inserting the grease, wipe off any excess grease. A general purpose pressure gun grease (lithium base) is used to lubricate the tractor.

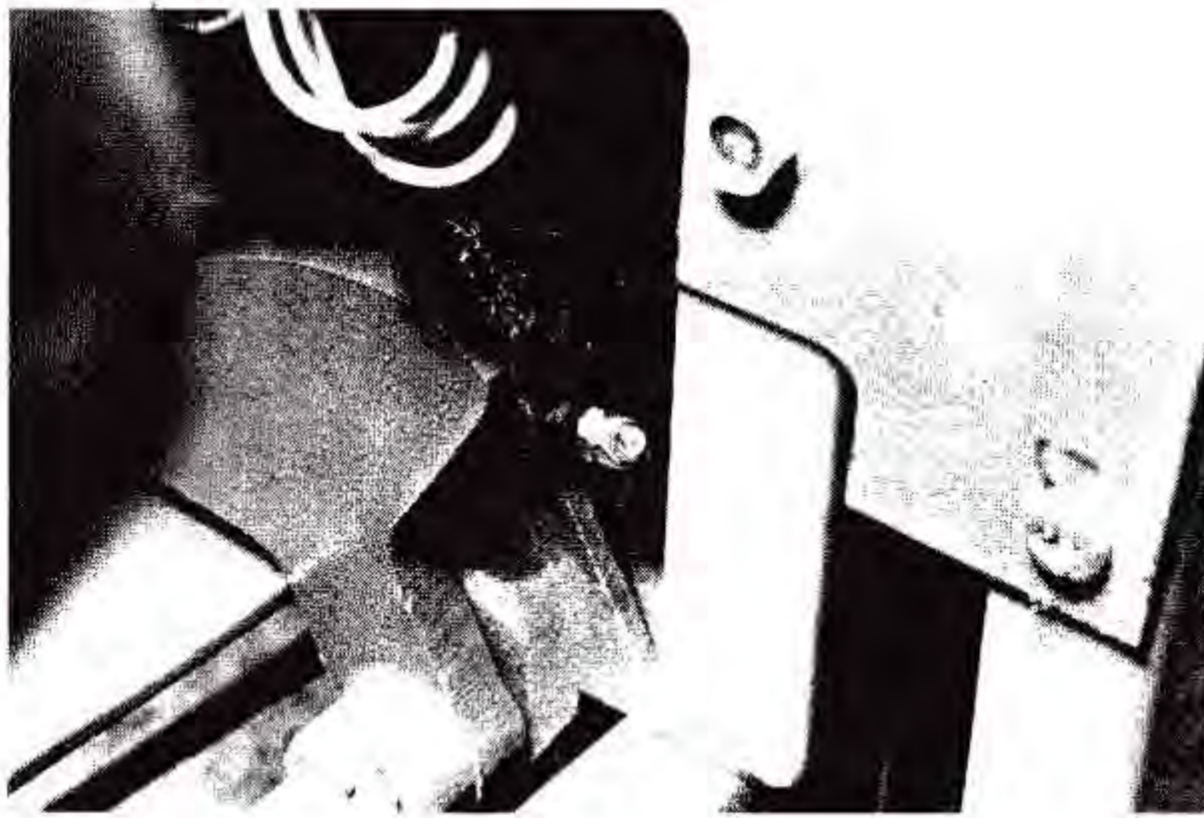
Lubricate the chassis after each 25 hours of operation. All other pivoting arms and levers should be lubricated at the same intervals with either general purpose grease or machine oil, applied directly to wear surfaces.



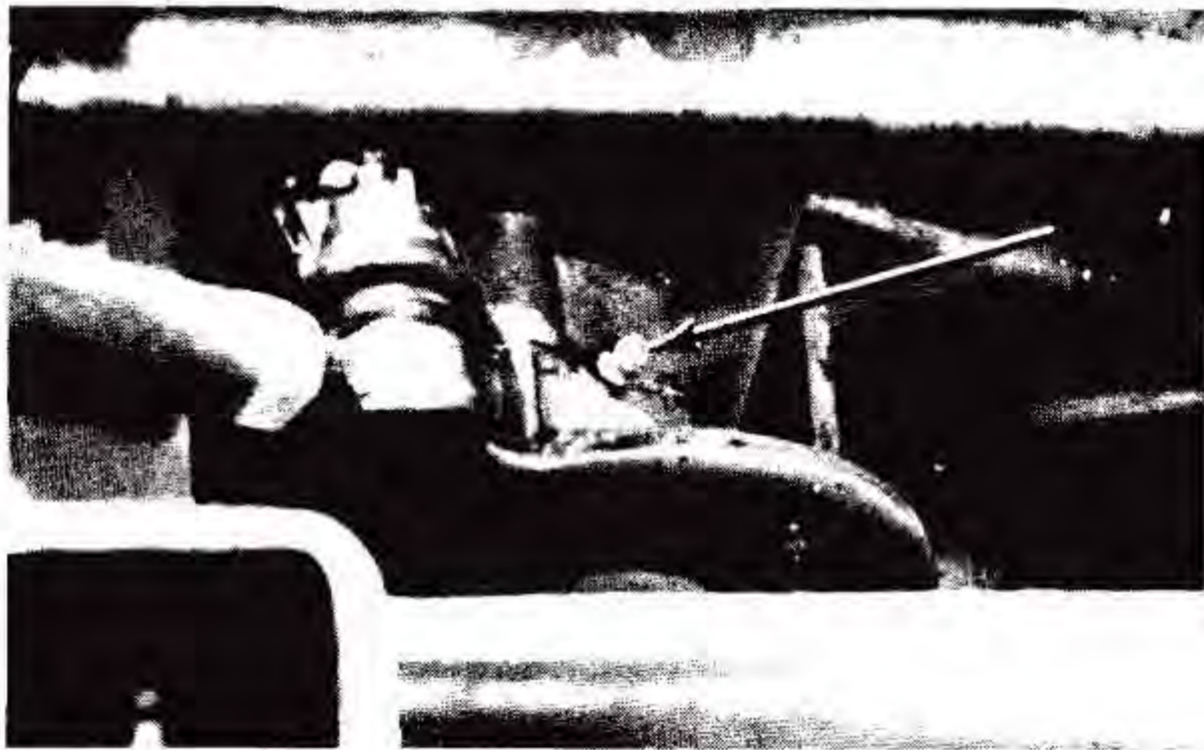
All Models — Front Wheel and Spindle Lube Fittings



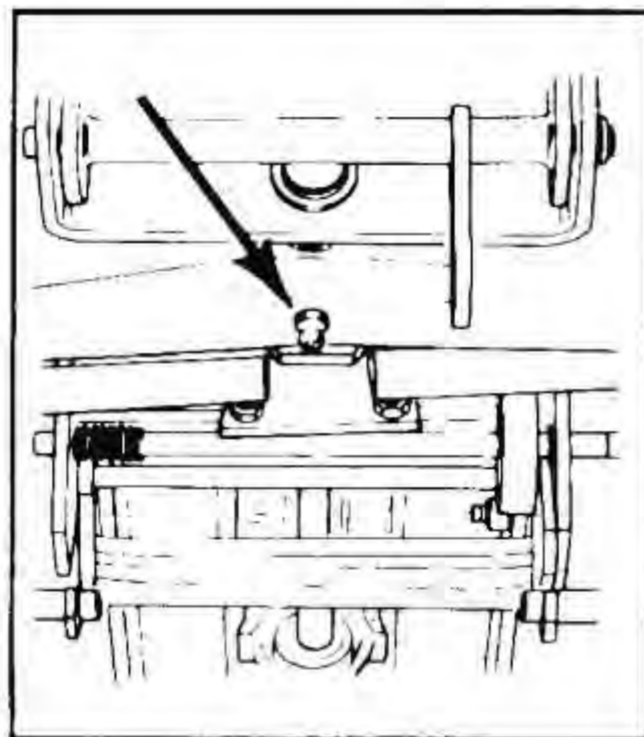
B-Series — Steering Gear Lube Fitting



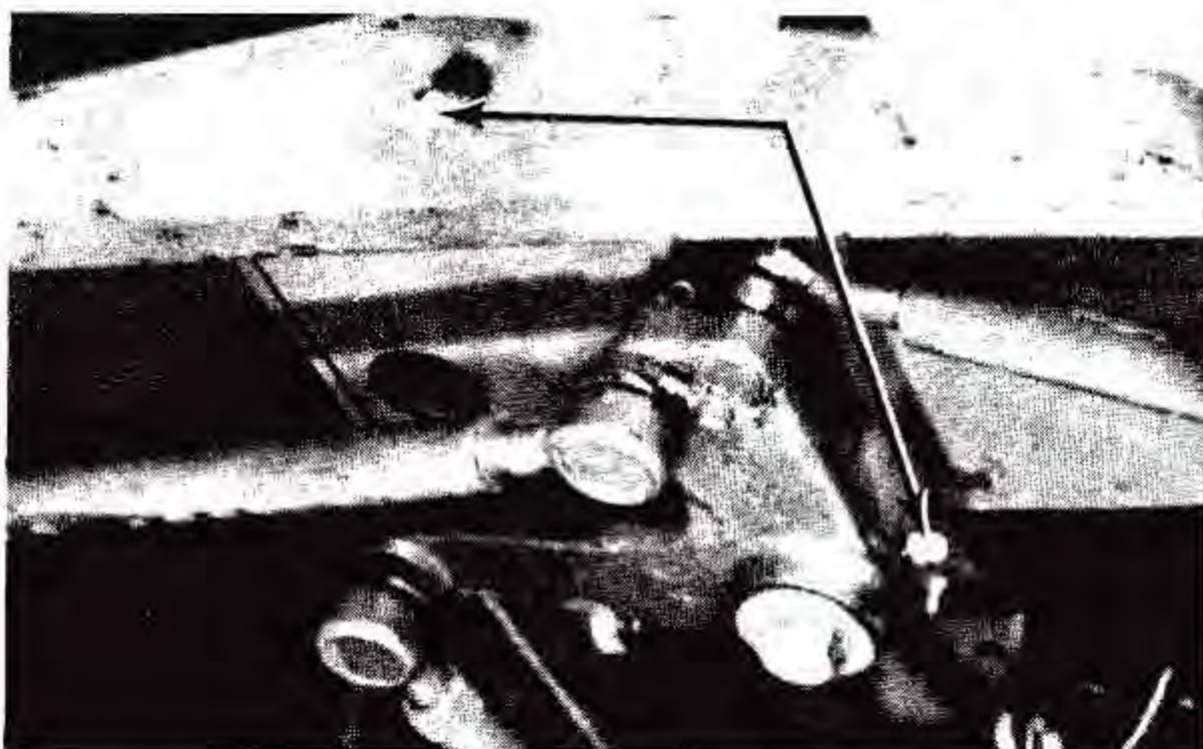
**C-Series — Steering Gear Lube Fitting**



**D-Series — Steering Gear Lube Fitting**



**B & C-Series — Front Axle Lube Fitting**



**D-Series — Front Axle and Bell Crank Lube Fittings**

## FOOT BRAKE ADJUSTMENT

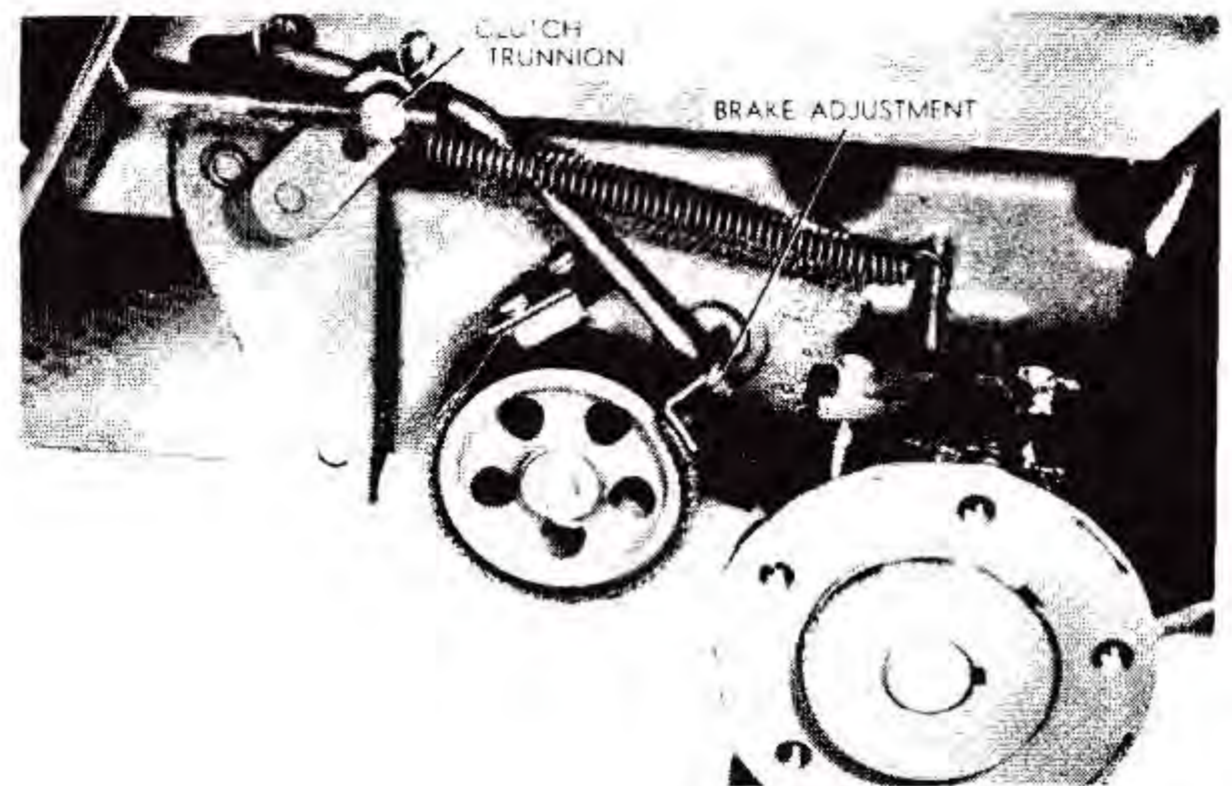
### 6-Speed Models

The disc brake on the 6-Speed transmission is self-compensating for wear and requires no periodic adjustment. If, for some reason, the brake should not operate properly, consult your authorized dealer for service.

### 8-Speed Models

The brake band, located on the left side of the transmission, brakes the transmission shafts and, in turn, brakes the rear wheels.

To adjust the brake push down on the brake pedal and pull back on the parking brake lever. With the parking brake engaged, adjust the nut on the end of the rod until the brake band is tight enough to skid both rear wheels when the tractor is pushed. Then tighten the nut another  $\frac{1}{2}$  turn. After adjustment, the parking brake lever should not travel to the rear end of the lever's slot when the parking brake is engaged.



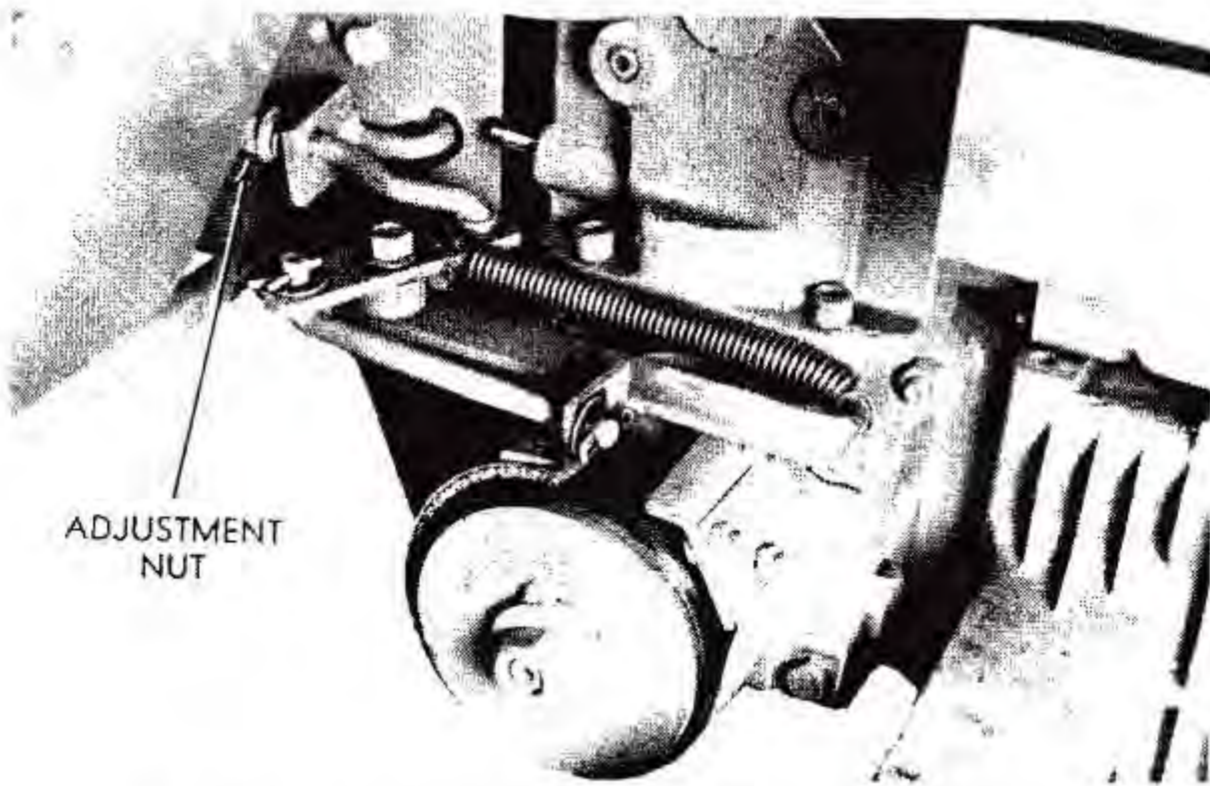
**8-Speed Brake Adjustment**

### Automatic Models

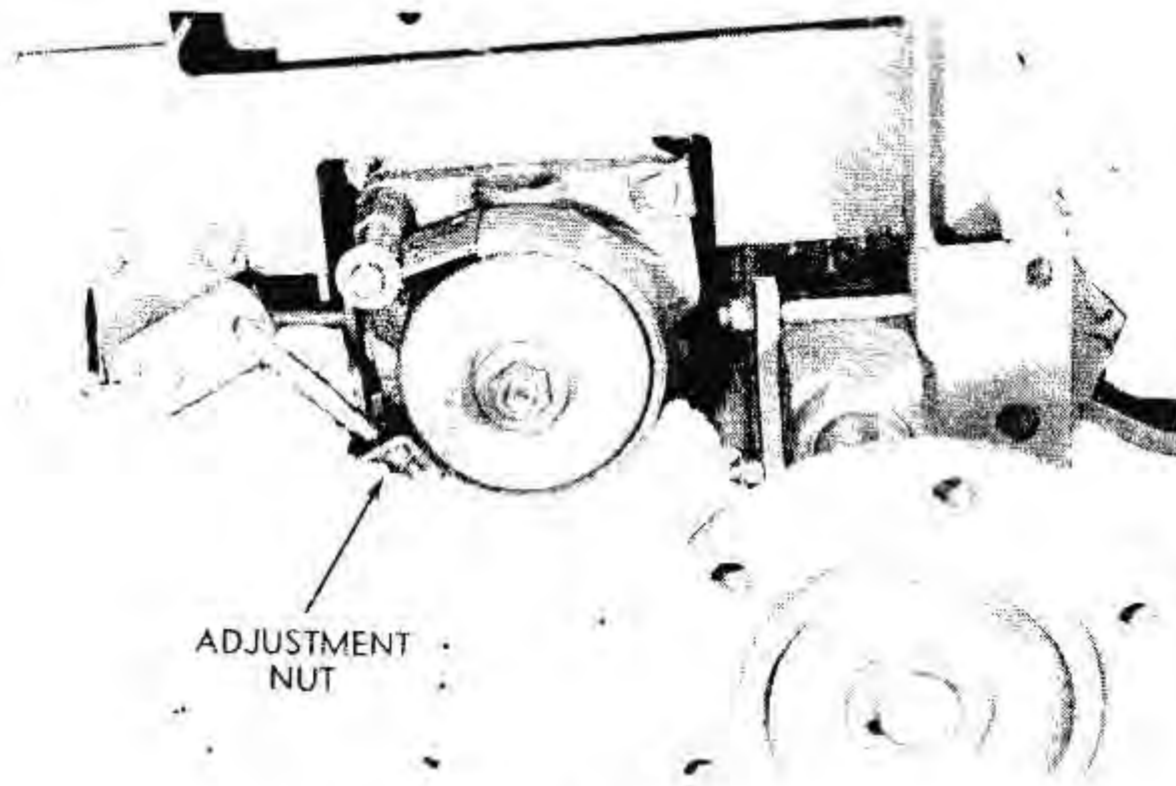
The brake band, located on the left side of the transmission, brakes the transmission shafts and, in turn, brakes the rear wheels. As the brake pedal is depressed, linkage returns the transmission to neutral, dynamically braking the tractor. The brake band is actuated after the transmission reaches neutral, providing additional braking action. The brake band also serves as the parking brake.

To adjust the brake on C-Series automatic tractors, follow the preceding procedure outlined under "8-Speed Models". On D-Series tractors, with the brake released, tighten the adjustment nut until the brake band can no longer be slid from side to side on the brake drum. Then back off the nut until the brake band is again free to slide from side to side.

If the tractor creeps after the brake pedal is depressed and then released, the linkage that returns the tractor to neutral requires adjustment. Your authorized dealer should make this adjustment.



**C-Series Automatic — Brake Adjustment**



**D-Series Brake Adjustment**

## PTO CLUTCH AND BRAKE ADJUSTMENT

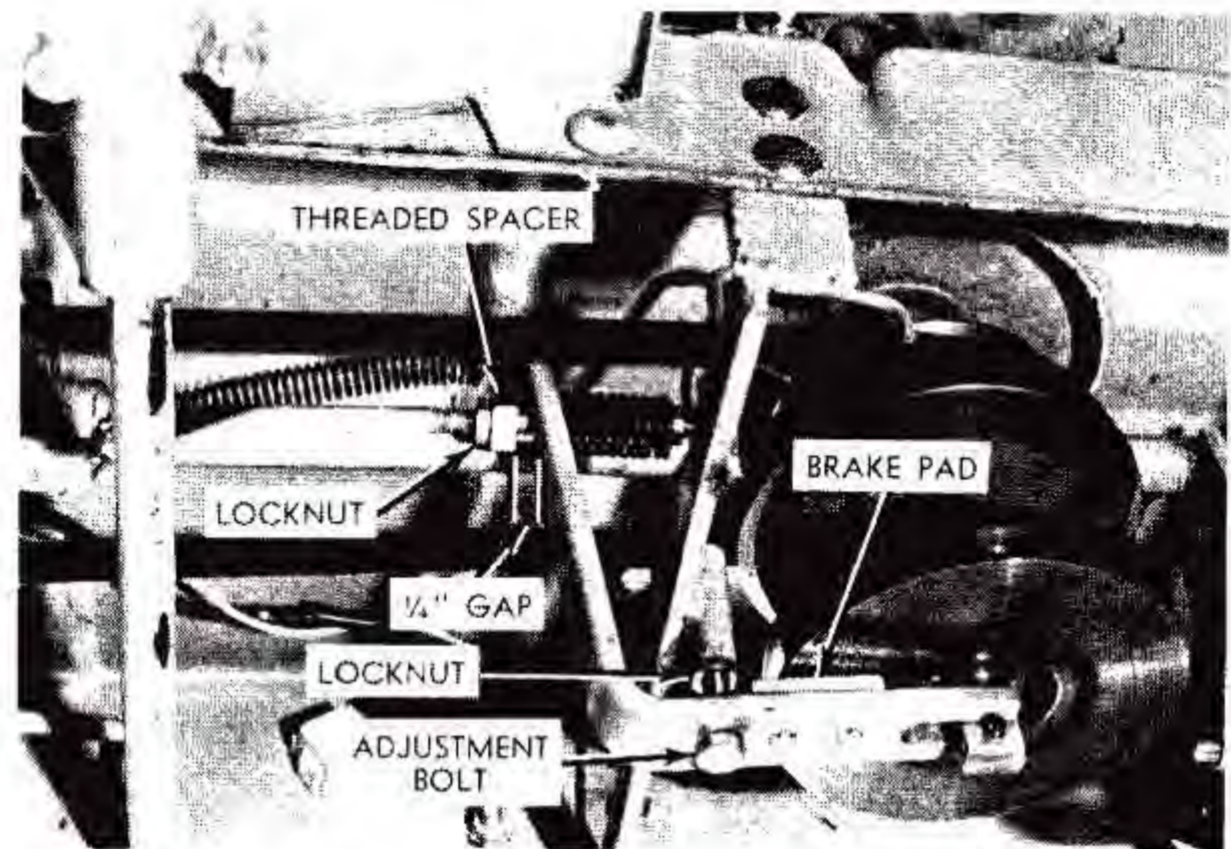
The PTO clutch and brake may require periodic adjustment due to normal wear of friction surfaces. Adjustments are made as follows:

### B-Series

To adjust the PTO clutch and brake:

1. Engage the PTO clutch.
2. Loosen the locknut on the PTO brake adjustment bolt.
3. Turn the adjustment bolt so there is a .010 in. (.25 mm) gap between the brake pad and the clutch pulley face, then tighten the locknut.
4. Check the gap between the hex head of the threaded spacer, on the PTO rod, and the clutch/brake bracket, which should be 1/4 in. (6.4 mm). If adjustment becomes necessary, proceed as follows:

Loosen the locknut behind on the threaded spacer on the PTO rod; turn the hex end of the threaded spacer clockwise or counterclockwise, as required, to attain the proper gap. Retighten the locknut and recheck the gap between the brake pad and the clutch pulley face.



**B-Series PTO Adjustments**

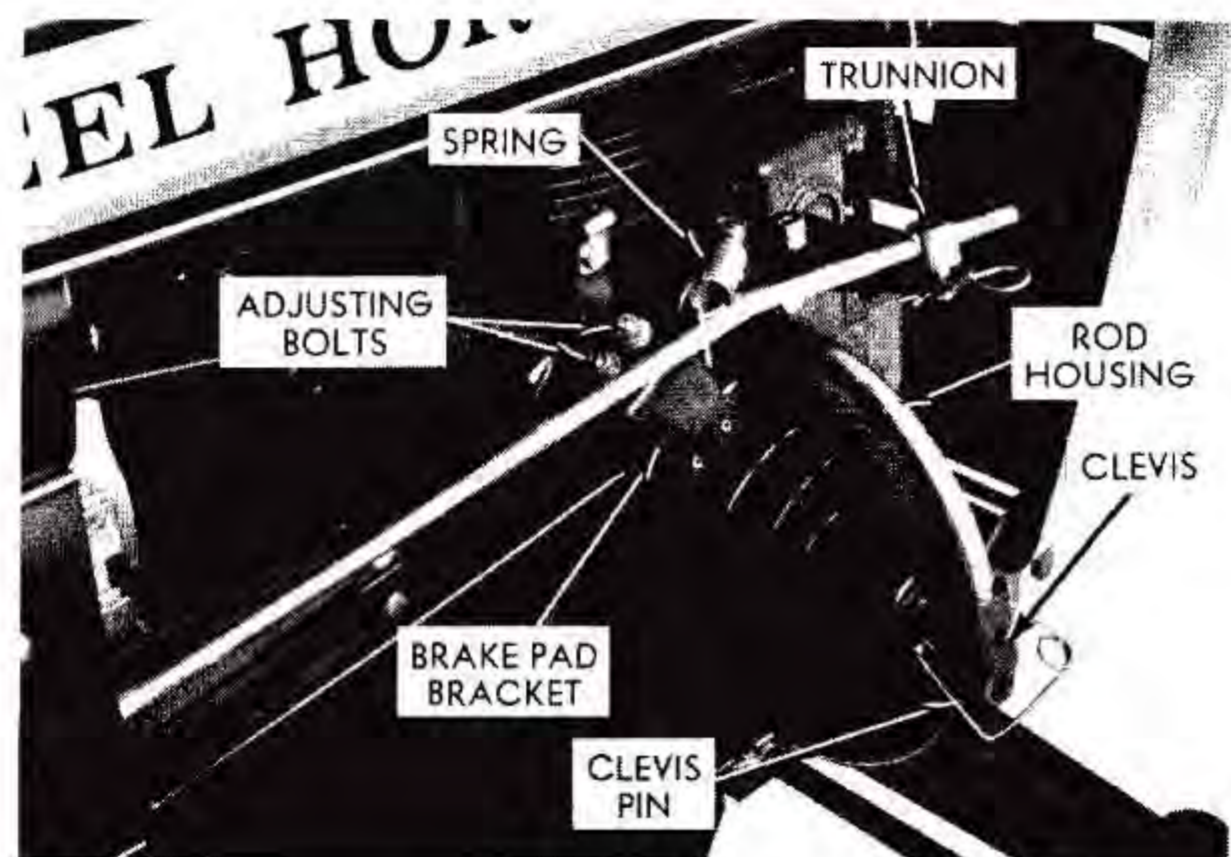
### C-Series

To adjust the PTO clutch:

The PTO clutch is adjusted at the factory and should provide many hours of trouble free service before adjustment becomes necessary. Adjustment is required only when the PTO clutch slips noticeably. If clutch slippage is apparent, turn the trunnion toward the rear of the rod in one turn intervals until clutch slippage is eliminated.

To adjust the PTO brake:

1. Engage the PTO clutch.
2. Loosen the two bolts that hold the brake pad bracket to the support bracket.
3. Place a .012 in. (.3 mm) feeler gauge between the brake pad and the clutch pulley.
4. While holding the brake pad against the feeler gauge and pulley, tighten the two brake bracket bolts.



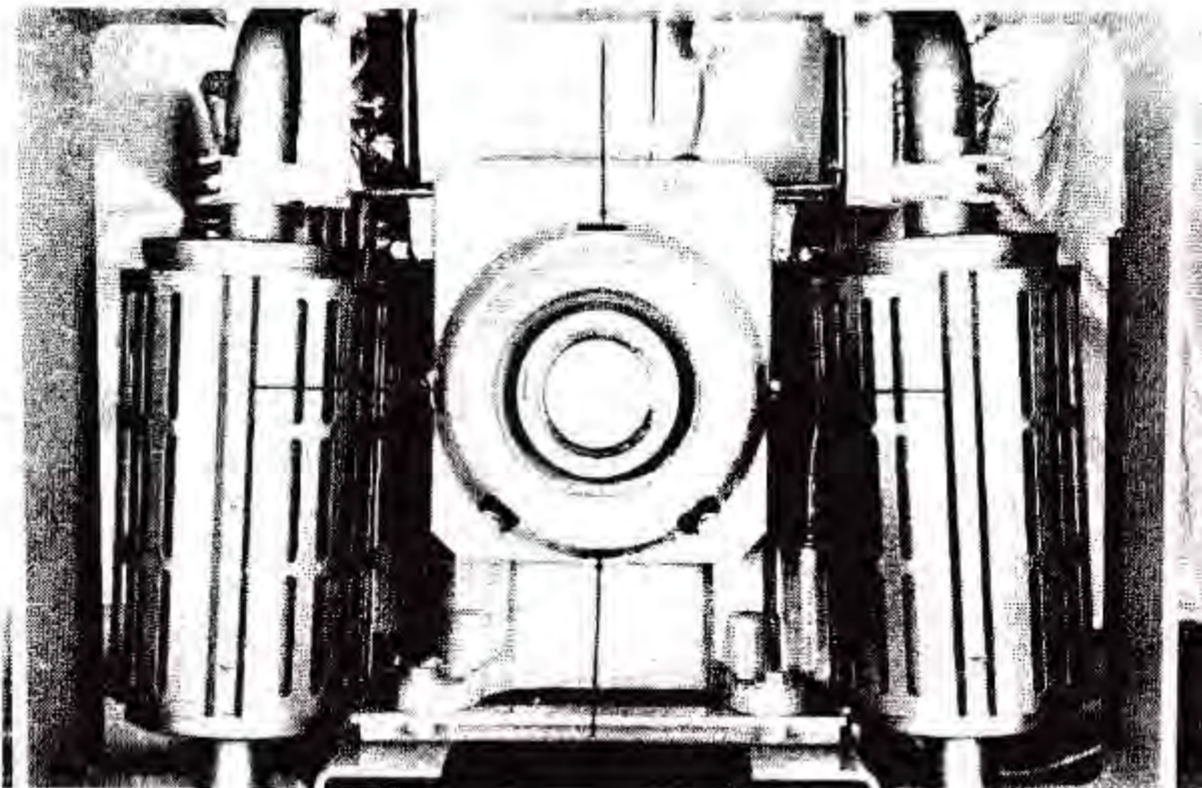
**C-Series PTO Adjustments**

## D-160

The electric PTO clutch on the D-160 is self-compensating for wear and does not require adjustment; if clutch problems are encountered, consult your authorized dealer for service.

To adjust the PTO brake:

1. Remove the grille.
2. Position a piece of .012 in. (.3 mm) shim stock in each of the four slots in the brake flange.
3. Turn ignition switch to the Run position and the PTO switch to the On position. Tilt the tractor's seat forward and place a weight on the seat switch button, sufficient to actuate the switch.
4. Loosen the four locknuts holding the brake flange. Push on the brake flange until it bottoms out and retighten the four locknuts. Do not overtighten.
5. Turn PTO switch to the Off position and remove ignition key. Recheck the gap at all four positions with a feeler gauge. The gap should be between .010 and .015 in. (.3 and .4 mm).



D-160 PTO Brake Adjustment

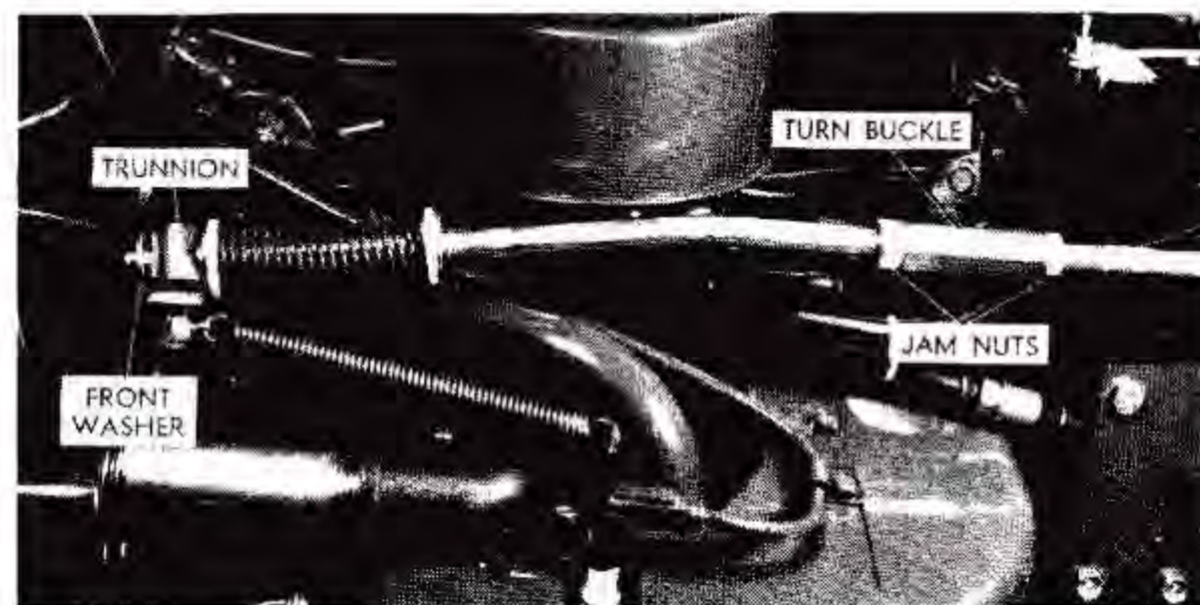
## D-200

To adjust the PTO clutch:

1. Remove the grille and disengage the PTO clutch.
2. Loosen the two brake bracket bolts.
3. Loosen the lock nuts and adjust the turnbuckle on the clutch rod so that the rear clutch plate facing just clears the pulley, allowing it to be turned freely by hand.
4. Engage PTO clutch and check tension. The washer at the front end of the clutch rod should just clear the trunnion so it can be turned by hand.
5. Adjust PTO brake as outlined in the following paragraph.

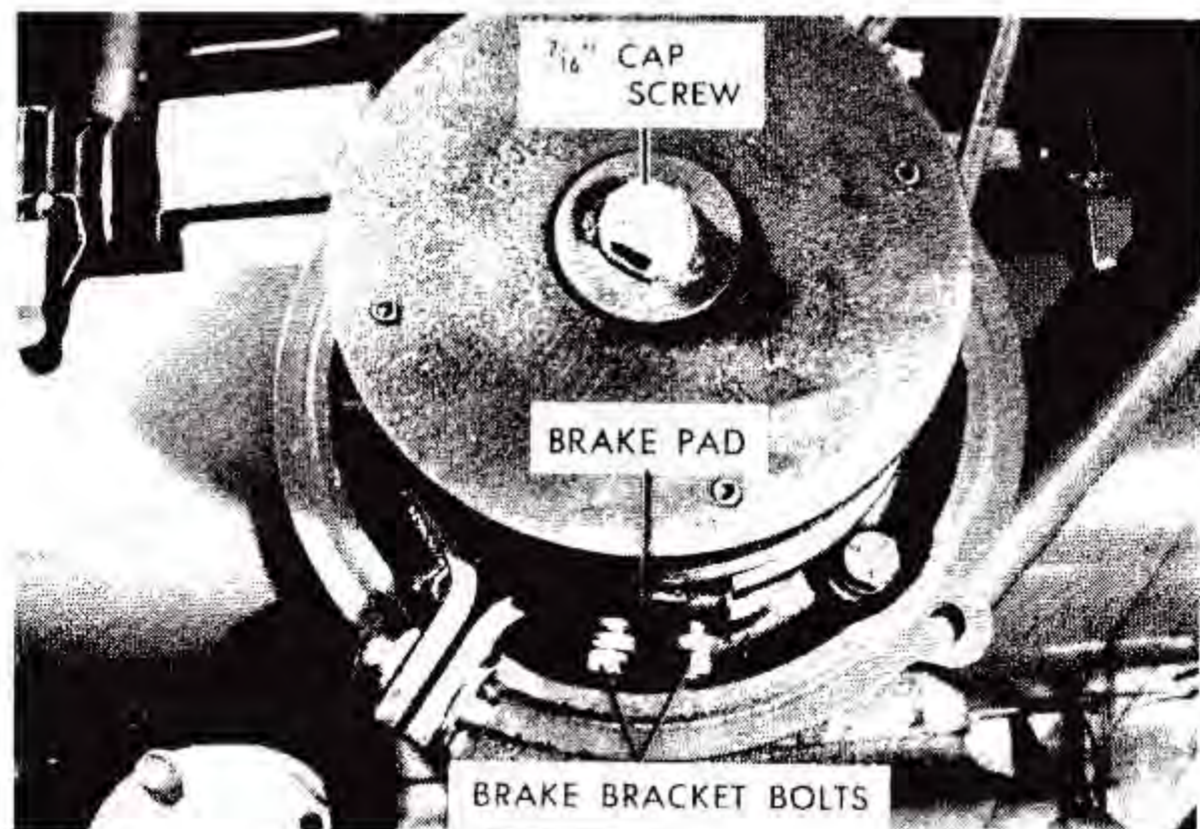
To adjust PTO brake:

1. Remove the grille and engage the PTO clutch.
2. Loosen the two brake bracket bolts.



D-200 PTO Clutch Adjustment

3. Place a .012 in. (.3 mm) feeler gauge between the brake pad and the clutch pulley.
4. While holding the brake pad against the feeler gauge and pulley, tighten the two brake bracket bolts.



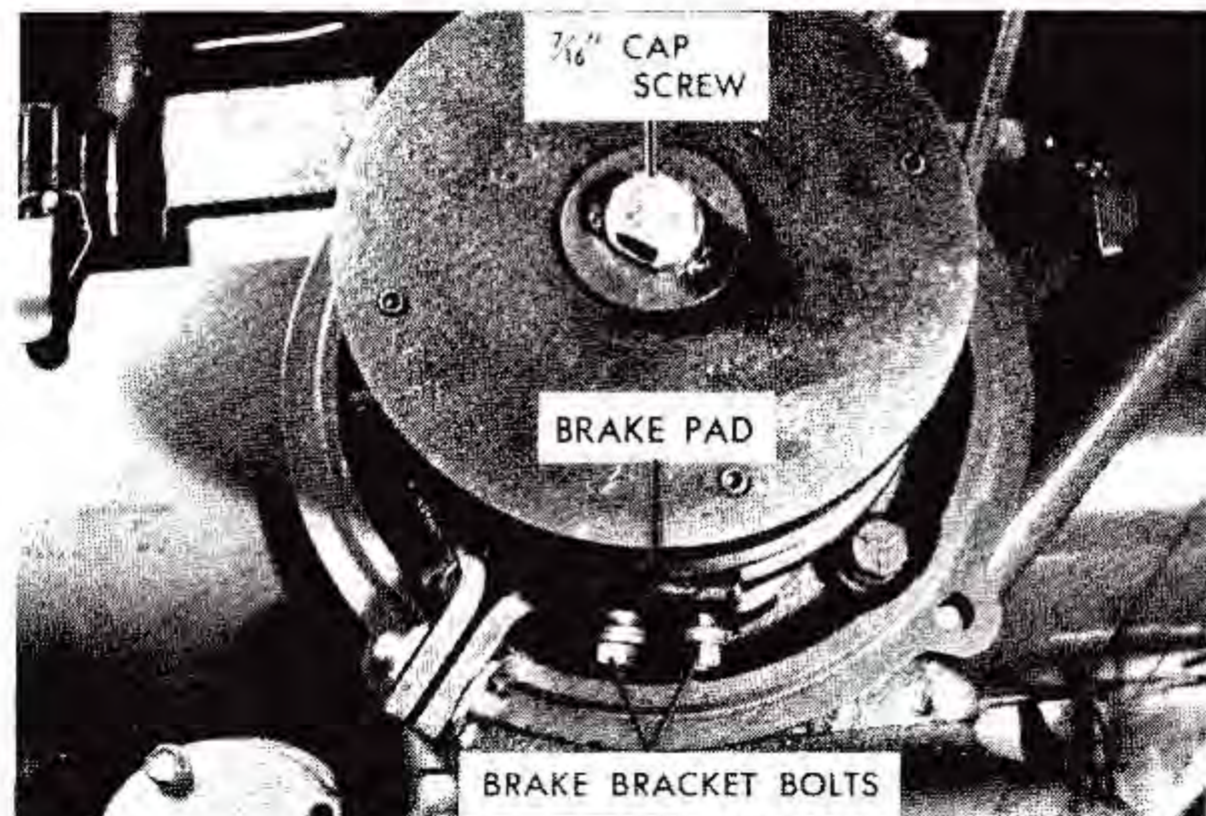
D-200 PTO Brake Adjustment

## PTO CLUTCH MAINTENANCE – D-200

After each 100 hours of operation or one year, whichever comes first, the PTO clutch on the D-200 should be cleaned and relubricated.

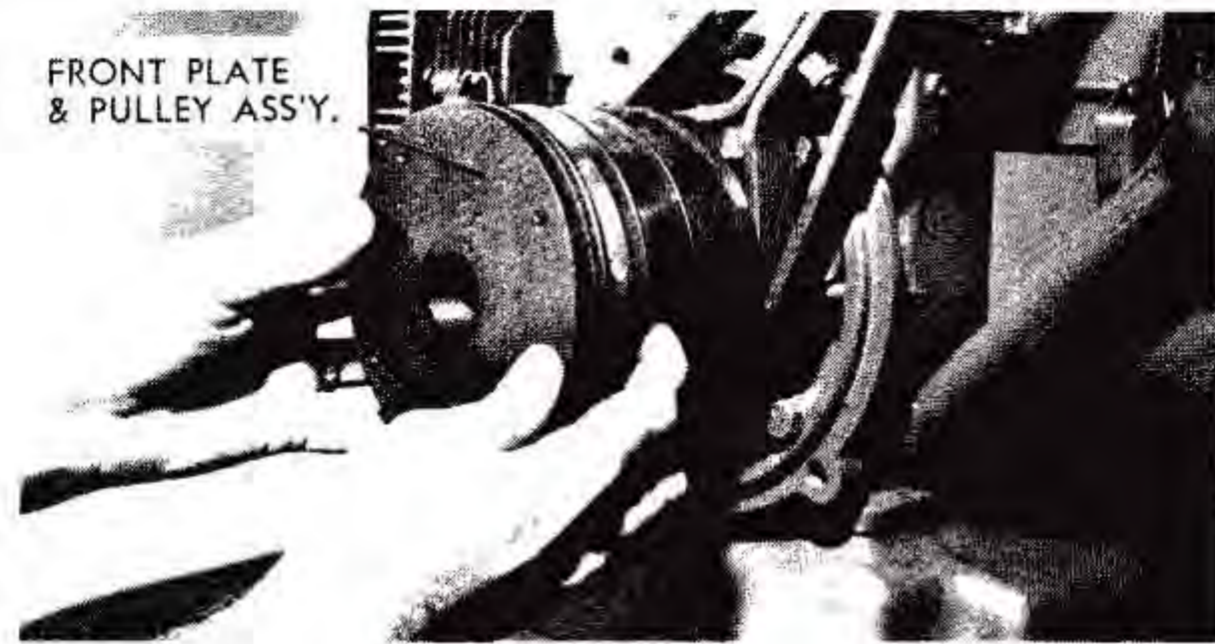
### Removal

1. Loosen the two brake bracket bolts so the brake pad and bracket hang down enough so the pulley may be removed.



D-200 Clutch Pulley Brake

2. Remove the  $\frac{7}{16}$  cap screw and special cap washer and remove the front plate and pulley assembly.



**D-200 Clutch Removal**

3. Press the pulley against the front clutch plate to compress the spring washers and remove the spiroloc retaining ring.



**D-200 Retaining Ring Removal**

4. Lift the pulley off the front clutch hub and remove the one plain washer and the four spring washers. Note the position of each washer as it is removed.



**D-200 Clutch Plate and Washers**

### Replacement

1. Clean the front clutch hub. Apply a thin coat of "moly" grease on the hub where the washers and bearings go on and then install the spring washers as follows: The first washer is cupped up — like a saucer with the outer edges up. The second washer with the outer edges down. Then the third washer like the first, has the outer edges up. Finally the fourth washer has the outer edges down. After the four cup washers are installed, place the plain washer on top of them.

2. Place the pulley and bearing assembly on over the front clutch hub with the notched section of the pulley up.

3. Press the pulley against the spring washers and install the spiroloc retaining ring.

4. Clean the crankshaft and key and make sure the rear clutch plate assembly is in good condition and moves smoothly and freely on the crankshaft when the control linkage is moved. Apply a small amount of "moly" grease on the crankshaft and key.

5. Make sure there is a spacer washer inside the front hub next to the internal snap ring, which determines the position of the hub on the crankshaft. Line up the keyway of the front clutch plate with the crankshaft key and slide the plate and pulley assembly in position on the crankshaft. Install the retaining bolt, washer, and end cap and tighten securely.

6. Check and adjust clutch and brake as described in the PTO clutch adjustment section.

### SEAT ADJUSTMENT (C & D-Series)

The seat tilts forward; on D-Series tractors the seat is retained in the forward position by placing the hairpin cotter in the hole provided. The hairpin cotter is stored in the adjacent hole. The seat may also be moved forward or rearward by loosening the four seat plate to seat spring bolts, and sliding the seat forward or rearward as desired. Retighten the four bolts.

### CLEANING AND STORAGE

After 30 days, painted surfaces may be waxed to protect the lustre of the original finish. The tractor should be washed regularly with a mild automotive type detergent and water. Exposed bare metal surfaces should be coated with oil or a light coating of grease to prevent rust until permanent repairs can be made. Aerosol cans of "Wheel Horse Red" and "Linen Beige" are available through your Authorized Wheel Horse Dealer.

When the tractor will not be used for an extended period of time, the following steps will help insure minimum difficulty when the unit is returned to service:

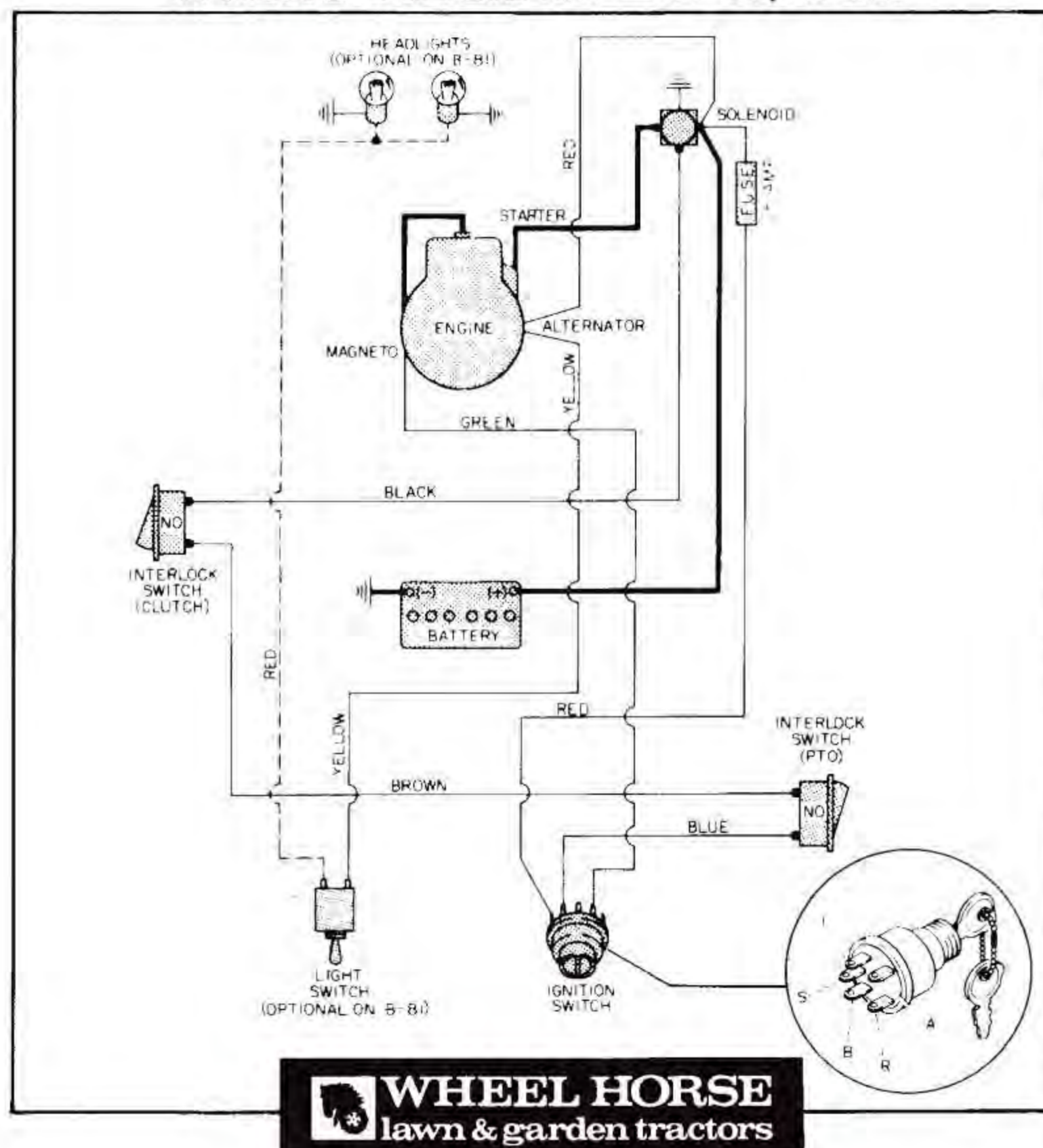
1. Perform required maintenance steps called for in the "Maintenance Checklist".
2. Check tires for proper inflation.
3. Drain all fuel from the fuel tank. Start the tractor and let the engine run out of gas. As gasoline grows old, it becomes less volatile and forms harmful gum and varnish deposits in the carburetor and fuel pump. **DO NOT STORE GASOLINE FOR MORE THAN 2 MONTHS.**
4. Wash the tractor and repaint all bare metal surfaces.
5. Charge the battery. In temperatures lower than 40° F (4° C) a battery will maintain a charge for about 60 days. In temperatures above 40° F (4° C) the water level should be checked and the battery "trickle charged" every 30 days, (more often in higher temperatures). The battery must be fully charged to prevent freezing and internal damage in weather below 32° F (0° C).
6. Remove the key from the tractor.

# TROUBLESHOOTING CHECKLIST

<u>SYMPTOM</u>	<u>POSSIBLE CAUSE</u>	<u>POSSIBLE REMEDY</u>
Engine will not turn over.	Dead battery. Open safety interlock switch.  Starter. Solenoid. Ignition switch.	Charge or replace battery. Be sure PTO is disengaged and depress left pedal.  Consult authorized dealer. Consult authorized dealer. Consult authorized dealer.
Engine turns over but will not start.	Spark plug(s) not firing.  Breaker points faulty.  No fuel in tank. Fuel valve closed. Improper carburetor adjustment. Ignition switch.	Check spark plug condition and reset gap.  Check breaker points condition. Consult authorized dealer.  Refuel tractor. Open fuel valve. Reset carburetor adjustment. Consult authorized dealer.
Engine hard to start.	Spark plug wire(s) grounded or loose. Breaker points faulty or improperly gapped. Spark plug(s) faulty or improperly gapped. Coil, condenser or magneto defective. Fuel filter clogged (D-Series) Fuel line clogged.  Fuel pump faulty (C, D-Series). Carburetor dirty or improperly adjusted.	Check spark plug wires.  Consult authorized dealer.  Check spark plug condition and reset gap. Consult authorized dealer.  Check fuel filter. Clean fuel line; check strainer in fuel tank.  Consult authorized dealer. Readjust carburetor. Consult dealer for authorized carburetor service.
Engine starts, but operates erratically.	Clogged fuel filter (D-Series). Clogged fuel line.  Water in fuel.  Vent in fuel cap plugged. Faulty fuel pump (C, D-Series). Improper carburetor adjustment.	Check fuel filter. Clean fuel line; check strainer in fuel tank.  Drain old fuel and replace with fresh supply.  Check vent. Consult authorized dealer. Readjust carburetor.
Engine knocks.	Fuel octane too low.  Incorrect ignition timing. Engine overheated.	Drain fuel and replace with higher octane supply.  Consult authorized dealer. Shut off engine and allow to cool.
Engine occasionally "skips" at high speed.	Spark plug(s) fouled, faulty or gap too wide. Incorrect ignition timing. Incorrect carburetor adjustment.	Check spark plug condition and gap. Consult authorized dealer. Readjust carburetor.

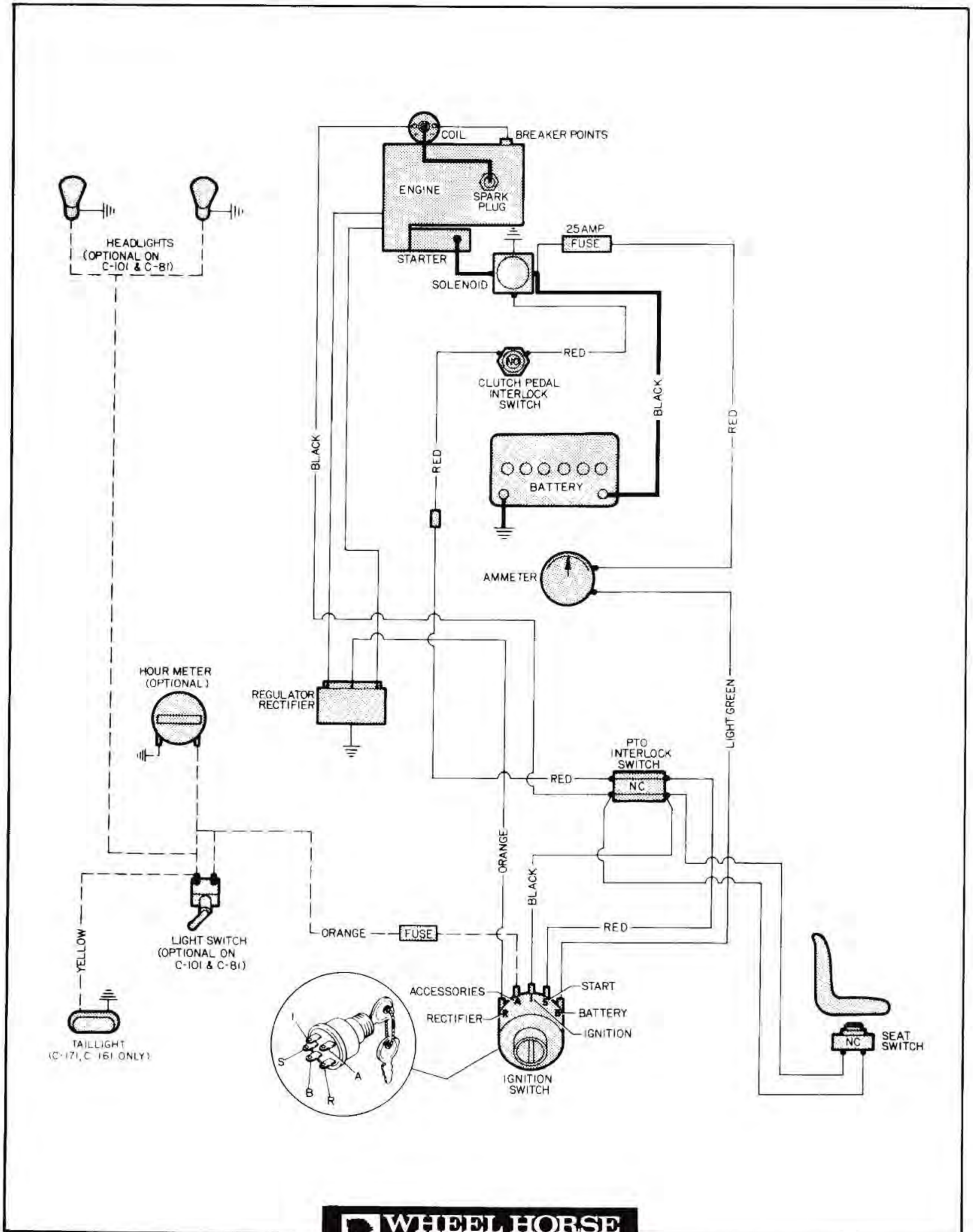
<b>SYMPTOM</b>	<b>POSSIBLE CAUSE</b>	<b>POSSIBLE REMEDY</b>
Engine overheating.	Air intake screen or fins clogged Oil level too high or too low. Fuel mixture too lean. Improper ignition timing. Engine overloaded.	Clean intake screen and fins. Adjust oil level as necessary. Readjust carburetor. Consult authorized dealer. Reduce load on tractor.
Engine idles poorly.	Improper carburetor adjustment. Improper spark plug gap.	Readjust carburetor. Check the condition and gap of spark plug(s).
Engine backfires.	Improper carburetor adjustment. Faulty breaker points.	Readjust carburetor. Consult authorized dealer.
Engine runs fine, but tractor will not move.	Open push valve (Automatic models). Faulty transmission.	Close the push valve. Consult authorized dealer.
Tractor loses power or transmission overheats. (Automatic models)	Transmission oil level too high or too low. Transmission cooling fan clogged (D-Series only) Transmission damage has resulted from operating engine at low RPM or contamination of oil.	Adjust oil level as necessary. Clean cooling fan Consult dealer for authorized service.
Engine stalls whenever PTO is engaged.	Excessive load on PTO. Faulty interlock system (C, D-Series).	Check for jammed attachments. Lessen load on attachment. Seat must be occupied to close interlock system. Consult authorized dealer.

### WIRING DIAGRAM – B-81, B-111

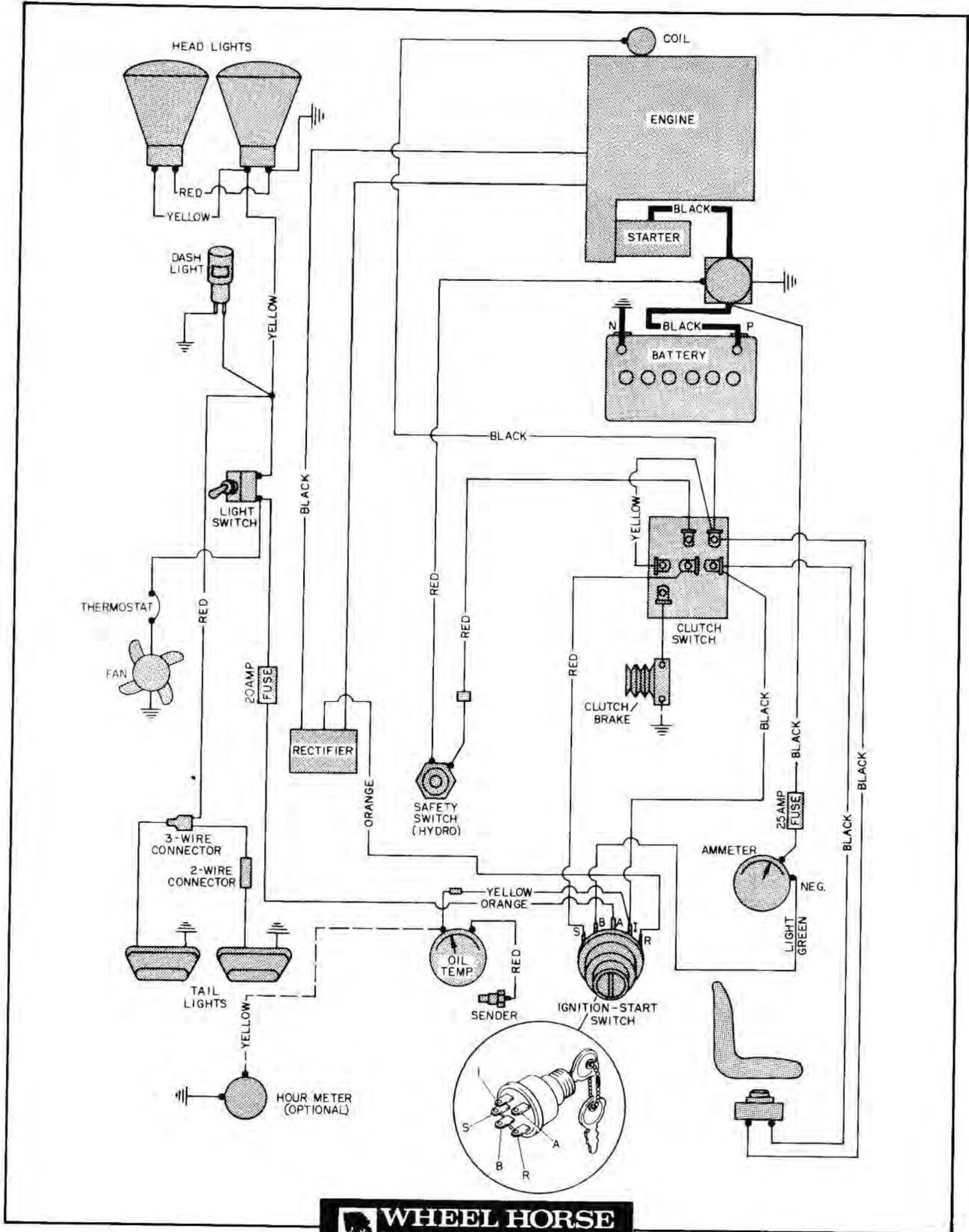




# WIRING DIAGRAM – C-81, C-101, C-121, C-141, C-161, C-171

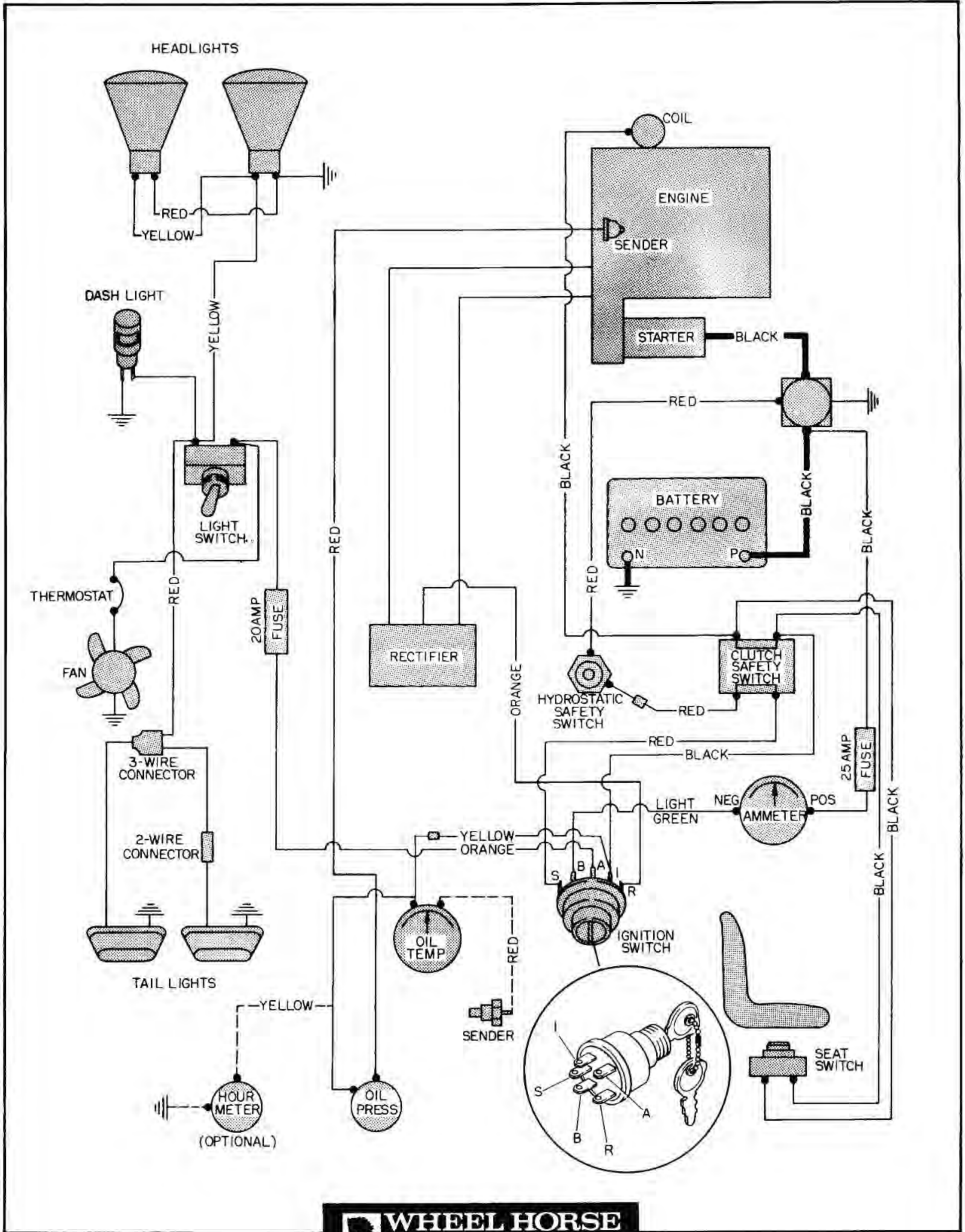


# WIRING DIAGRAM - D-160



**WHEEL HORSE**  
lawn & garden tractors

# WIRING DIAGRAM - D-200



A separate Parts Manual for your Wheel Horse tractor can be obtained by completing the form below and sending it, along with a check or money order, to:

**PARTS DEPARTMENT  
WHEEL HORSE PRODUCTS, INC.  
515 W. Ireland Road  
South Bend, Indiana 46614**

**TRACTOR  
PARTS MANUAL ORDER FORM**

Enter number shown on your tractor:



I have enclosed a check or money order for \$4.00 (B-Series), \$5.00 (C-Series), \$6.00 (D-Series) for each manual requested.

MAILING LABEL — PLEASE PRINT CLEARLY

To:

Name

Address

City

State

Zip